

EXHIBIT 23

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Part 3

The truth of the matter is really an empirical question with few satisfactory answers.²²

396d. State indirect purchaser statutes. The *Hanover Shoe* decision may have been disappointing to the business community, but it did not create the hue and cry that *Illinois Brick* generated. The reason for the commotion was an apparently obvious injustice. Consider a conspiracy among television set manufacturers. The collusive overcharge to some extent is bound to be reflected in the price paid by the consumer. Being an indirect purchaser, however, the consumer cannot recover any of his or her hard-earned dollars that were spent as a result of the collusion. The fact that the ultimate consumer paid a higher price, but had no standing to sue struck many people as unfair. When legislative efforts to repeal *Illinois Brick* at the federal level proved unsuccessful, some states passed legislation that permitted indirect purchasers to sue.²³

In *Illinois Brick*, the Supreme Court recognized that permitting indirect purchasers to sue would require overruling *Hanover Shoe* if duplicative damages were to be avoided.²⁴ But the concern for multiple liability and the potential for duplicative damages does not extend to state indirect purchaser statutes. This issue was resolved in *ARC America*,²⁵ when the Supreme Court ruled that *Illinois Brick* only precluded indirect purchasers from suing under federal law; it did not preclude their suing under state antitrust or consumer protection statutes that permit indirect purchasers to sue.²⁶ Thus, the Court's concern for multiple liability was really a concern for multiple liability under the Sherman Act. If the states wanted to expose antitrust defendants to another layer of liability, that was of no concern to the Court.²⁷

22. To answer this empirical question, one would have to assess the extent of private enforcement with and without standing for indirect purchasers. It is difficult to construct such an experiment. Snyder's analysis suggests that *Illinois Brick*'s influence was neutral. See Edward A. Snyder, *Efficient Assignment of Rights to Sue for Antitrust Damages*, 28 J.L. & Econ. 469 (1985). Joyce and McCuckin found that *Illinois Brick* tended to increase the incidence of private suits and therefore would have enhanced deterrence. See Jon M. Joyce & Robert H. McCuckin, *Assignment of Rights to Sue Under Illinois Brick: An Empirical Assessment*, 31 Antitrust Bull. 235 (1986).

23. See ¶2412d. Also see Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* §16.6d (5th ed. 2015).

24. *Illinois Brick*, 431 U.S. at 736.

25. *California v. ARC Am. Corp.*, 490 U.S. 93 (1989).

26. For a largely critical view of *ARC America*, see Ronald W. Davis, *Indirect Purchaser Litigation: ARC America's Chickens Come Home to Roost on the Illinois Brick Wall*, 65 Antitrust L.J. 375 (1997). In addition, see William H. Page, *The Limits of State Indirect Purchaser Suits: Class Certification in the Shadow of Illinois Brick*, 67 Antitrust L.J. 1 (1999).

27. The multiples could be quite alarming if the state statute provides for treble damages. First, the fine in the criminal trial can be twice the overcharge. Second, the direct pur-

396e. Indirect purchaser class actions. Many indirect purchasers, especially consumers, do not suffer much individual harm because they do not buy much of the cartelized product. For the most part, their individual claims are too small to litigate. As a result, many indirect purchaser suits are filed as class actions. For a class to be certified, however, issues that are common to all of the class members must predominate over individual issues.²⁸ In most of these cases, the state courts have found that common issues do not predominate. As a result, most of the putative classes are not certified.

Consider what it means for a proposed class to rely on common proof in an antitrust case. The class would have to prove the fact of injury through common proof. This requires showing that the actual price paid exceeded the "but for" price. The "but for" price is determined by the forces of supply and demand absent conspiracy in the market—that is, the intersection of the supply and demand curves that would have existed absent collusion. Proof of impact using common proof is problematic when the class members are in many different product and geographic markets. Suppose, for example, that there are four years covered by the complaint and that there is seasonal variation in the market. Since supply and demand conditions vary over time, this means that at least 16 "but for" prices will have to be estimated. If the geographic market is localized, supply and demand can vary from place to place and therefore one would have to estimate the 16 "but for" prices in each market. In Florida, for example, one might have to estimate prices for each metropolitan statistical area (MSA).²⁹ There are 20 MSAs in Florida, which means that there would be 320 "but for" prices to estimate. So far, we have assumed a single product, but suppose that there are five products covered by the complaint;³⁰ this means that we would now have 1,600 "but for" prices to estimate in a single state. This gets much worse if a nationwide class is involved.

chaser will claim three times the overcharge. Third, indirect purchasers collectively may recover even more than the direct purchasers if there is no *Hanover Shoe* defense under the state statute. Suppose a direct purchasing distributor passed on 75 percent of the overcharge to a wholesaler, who passed on 50 percent to the retailer, who passed on 25 percent to consumers. In the aggregate, the indirect purchasers would collect 4.5 times the overcharge. Thus, the full sanction for the defendant would be 9.5 times the overcharge.

28. See §331.

29. The MSA is not necessarily a geographic market, but we use this for purposes of illustration. Defining geographic markets is examined in detail in Subchapter 512.

30. This raises another question if some indirect purchasers do not buy all of the products.

Given the problems with charge on a single product over time, it would seem that estimating some (at best) and not subjecting that this overstates the damage. Arguably, one could build such variations in a single equation (dummy) variables for time and the plaintiff would identify supply and demand and include different methods and different geographic markets those sources of variations. The indirect purchaser case is likely to be problematic.

The second problem for indirect damages using common proof may not suffice. First, some protection in their supply would be unaffected by the an individualized issue. Second, enough that they are not a some (or all) class member allowances that are not reasonable. For example, that a customer is charged if the total purchase any quarter. This would be a damage estimate and would be Fourth, establishing the actual impossible if the plaintiff instances, those records will have records of the amount ago? In any event, this would common proof. If the defendant records, these may serve as records do not always exist. usually not be recorded on, not be feasible to establish the members using common proof.

In *Peridot*,³¹ a proposed commercial tissue products all

31. *Peridot v. Kimberly-Clark Corp.* 2000).

Given the problems with estimating the extent of the overcharge on a single product in a single market at a single point in time, it would seem that estimating 1,600 prices would be cumbersome (at best) and not subject to common proof. Some might argue that this overstates the difficulty of relying on common proof. Arguably, one could build an econometric model that controls for such variations in a single equation through the use of indicator (or dummy) variables for time, product, and location. In other words, the plaintiff would identify the relevant determinants of supply and demand and include dummy variables for different time periods and different geographic locations in an effort to control for those sources of variations. Whether this approach will work in an indirect purchaser case is highly questionable.

The second problem faced by the putative class is estimating damages using common proof. In this endeavor, common proof may not suffice. First, some class members may have had price protection in their supply agreements, which means that they would be unaffected by the alleged conspiracy. This fact is clearly an individualized issue. Second, some buyers may be important enough that they are not asked to pay the collusive price. Third, some (or all) class members may receive discounts, rebates, and allowances that are not reflected on the invoice. Suppose, for example, that a customer is entitled to a 5 percent rebate on all purchases if the total purchases across all products exceed \$10,000 in any quarter. This would clearly have to be incorporated in any damage estimate and would also be an individualized matter. Fourth, establishing the actual price paid will often prove to be impossible if the plaintiffs' records must be used. In many instances, those records will not exist. After all, how many of us have records of the amount of gasoline we purchased five years ago? In any event, this would be individualized proof, rather than common proof. If the defendants have computerized invoice records, these may serve as a source of common proof, but such records do not always exist. Moreover, retail cash transactions will usually not be recorded on a customer-specific basis. Thus, it may not be feasible to establish the actual prices paid by the class members using common proof.

In *Peridot*,³¹ a proposed class of indirect purchasers of commercial tissue products alleged that the major producers were

31. *Peridot v. Kimberly-Clark Corp.*, No. MC 98-012686 (Minn. Dist. Ct. 4th Dist. Feb. 7, 2000).

guilty of price fixing. The Minnesota antitrust statute expressly allows indirect purchasers to sue for damages.³² The court denied class certification for several reasons.³³ Although there appeared to be enough evidence to prove impact, proving damages was another matter. The plaintiffs' expert proposed several statistical methodologies — regression analysis and markup analysis — but he had not actually designed or implemented these methodologies. The plaintiffs' expert recognized that his model would have to control for nonconspiratorial factors that could influence price, but he acknowledged that he was unsure how he would do that or even if he could do that. As with other class representatives in Minnesota, the named plaintiffs, Peridot and Vernon, were unable to satisfy all of the standards for class certification under Minnesota's rules.³⁴

An indirect purchaser has more empirical work to do than a direct purchaser. Consider the case where the plaintiff is a customer of the direct purchaser. In order to estimate its antitrust damages, the indirect purchaser must first estimate the overcharge and then estimate how much of that overcharge was passed on to it by the direct purchaser. If the chain of distribution does not stop there, then the indirect purchaser may have to estimate how much of the overcharge it passed on to its customers.³⁵ Thus, the successful plaintiff will have three empirical chores instead of just one.

This, however, is the easiest case. If the indirect purchaser is further removed from the conspiracy, the problem of proving damages multiplies. In the lysine case, for example, a retail purchaser of ground beef would have to estimate the original overcharge due to the conspiracy, then estimate how much of that overcharge was passed on to the cattle rancher, the meat producer, the wholesale distributor, and the retailer before estimating how much was passed on to the plaintiff. This effort would be challenging to say the least.

32. Minn. Stat. §325D.57.

33. The court was concerned primarily with whether the class members could be identified without conducting mini-trials on the issue.

34. For an examination of class certification issues in indirect purchaser suits, see William H. Page, *The Limits of State Indirect Purchaser Suits: Class Certification in the Shadow of Illinois Brick*, 67 Antitrust L.J. 1 (1999); Chris S. Courtonis & D. Matthew Allen, *The Pass-On Problem in Indirect Purchaser Class Litigation*, 44 Antitrust Bull. 179 (1999).

35. Indirect purchasers must sue under state statutes, which may vary in their scope and whether the plaintiff is entitled to only its net injury.

396f. The problem of damage claims by indirect purchasers must be distinguished from the problem of interference between the plaintiff and the defendant who would have paid but for the plaintiff's claim. The plaintiff's claim is from the defendant's estimating the "but for" price in the realistic case: a conspiracy to overcharge to distributors, to consumers, to consumers, it is, of course, but the "but for" price control for factors other than stage — changes in costs, product improvements, so on. In order to do this, overcharge at the man-

In other cases, the "for" price becomes fair for a product that is subject to more layers. It goes through more layers for changes in supply and price becomes more difficult to control. More markets to consider, but the amount because only one. Everyone else is buying or another. Controlling "but for" prices of feed is a formidable task. It chain could avoid spe-

¶397. Damages for E

Purchasers are not the victims. Those who are excluded from a market suffer some negative result of an antitrust violation.

36. See ¶192.

37. See George Kosicki & Charles Antitrust Cases, 51 Antitrust

396f. The problem of speculative damages. In many cases, damage claims by indirect purchasers will be speculative.³⁶ The indirect purchaser must provide a reasonable estimate of the difference between the price he actually paid and the price that he would have paid but for the price fixing. The farther removed that the plaintiff is from the conspiracy, the more problematic becomes estimating the "but for" price. Consider, again, the simplest realistic case: a conspiracy at the manufacturing stage that results in overcharges to distributors — the direct purchasers — whose prices to consumers reflect the presence of the overcharge. For the consumer, it is, of course, relatively easy to prove the actual price, but the "but for" price is another matter. It will be necessary to control for factors other than the overcharge at the manufacturing stage — changes in costs, changes in demand, entry of new firms, product improvements, changes in taxes, regulatory controls, and so on. In order to do this, the plaintiff would have to estimate the overcharge at the manufacturing stage as well.

In other cases, the problem of reasonably inferring the "but for" price becomes far more complicated.³⁷ In a case where the product that is subject to cartelization does not change form but goes through more layers in the distribution process, controlling for changes in supply and demand conditions that could influence price becomes more difficult. This follows because there are more markets to consider. In cases like the lysine cartel, the problems mount because only the direct purchaser actually buys lysine. Everyone else is buying products that contain lysine in one form or another. Controlling for all of the factors that can influence the "but for" prices of feed, of cattle, of meat, and of grocery store sales is a formidable task. It is doubtful that a plaintiff at the end of the chain could avoid speculation.

¶397. Damages for Exclusionary Practices

Purchasers are not the only potential victims of antitrust violations. Those who are excluded (or foreclosed) from participating in a market suffer some economic injury. If the exclusion was the result of an antitrust violation, then the excluded parties may

36. See ¶392.

37. See George Kosicki & Miles D. Cahill, *Economics of Cost Pass Through in Indirect Purchases: Antitrust Cases*, 51 Antitrust Bull. 599 (2006), for a more detailed treatment.

recover antitrust damages under §4 of the Clayton Act.¹ If firms are excluded because they cannot compete due to poor quality or cost inefficiencies, then they will not be successful plaintiffs. That is, if the plaintiff is excluded due to the defendant's "superior product, business acumen, or historic accident [luck],"² then the exclusion will not violate §2 of the Sherman Act. If, on the other hand, some firms are excluded due to predatory pricing,³ exclusive dealing arrangements,⁴ tying contracts,⁵ or anticompetitive refusals to deal,⁶ then the firm may invoke the antitrust laws and sue for damages under §4 of the Clayton Act.

In principle, lost profits can be estimated using a before-and-after or a yardstick methodology. To avoid speculation, the plaintiff will have to provide a reliable foundation for estimating the "but for" profits.⁷ In addition, there will be questions regarding the length of the damage period. But most important, there will be a need to control for any factors that might have influenced the plaintiff's profit performance that are competitively neutral or even procompetitive. A failure to control for these factors will undermine the validity of the plaintiff's damage estimates.

397a. Nature of the injury. When a firm has been completely or partially foreclosed from participating in a market, it is unable to make sales that it presumably would have made otherwise. As a result, the firm loses the opportunity to earn profits on those sales. Thus, the injury to the foreclosed firm's business is the lost profit on lost sales.⁸ At the time of trial, the plaintiff may have to estimate future lost profits as well as past lost profits. Estimating the future lost profits requires forecasting future business and controlling for a variety of factors that could influence profits. This exercise is complicated by the relief granted. If the exclusionary conduct stops following a judgment for the plaintiff, the plaintiff

may be able to recover it: this event requires an estimated in the absence of now that the exclusionary would be some difference fully recovered from the model the recovery path reduced to present value: flow of future profits.⁹

In any event, the for between its actual profits but for the foreclosure. That were avoided because from the lost sales revenue plaintiff. It is important lost profits even if its proving the damage period. For period preceding the damage million during the damage was no injury. If the "but damage period, then the

397b. Measure of value. is the present value of enjoyed but for the exclusion estimating the profit stream value is examined in §397 of value have been suggested "alternatives" that are each of the future profit stream substantially different from should be viewed with caution

397b1. Capitalized earnings. is that the value of a its profitability. A business more than one earning approaches to capitalizing cash flow approach, which

§397. n.1. These plaintiffs also have to satisfy the same standing and antitrust injury requirements that purchasers must satisfy. See Ch. 3B.

2. See *United States v. Grinnell Corp.*, 384 U.S. 563, 570-71 (1966). On the monopolization offense, see Chapters 6-7.

3. Those who are victimized by a scheme that raises their costs can also assert that they were victims of predation.

4. On exclusive dealing, see Chapter 18.

5. See Ch. 17.

6. On unilateral refusals to deal, see Subchapter 7D-3.

7. See §392.

8. Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* §17.6a (5th ed. 2015) is skeptical: "In most such cases, the measure of damages is so imprecise that 'loss of the opportunity to do business' would describe the plaintiff's loss more accurately than 'lost profits,' which suggests a sum that is quantifiable with a fair amount of precision."

9. The principles of present

10. These have been summarized in *Business Valuation: The Analysis and Application of Valuation Methods to Small Business Acquisitions and Exits*.

may be able to recover its lost business. Calculating lost profits in this event requires an estimate of how the plaintiff would have performed in the absence of the foreclosure and how it will perform now that the exclusionary practices have ceased. No doubt there would be some difference between the two until the plaintiff has fully recovered from the exclusion. Thus, the plaintiff will need to model the recovery pattern. Additionally, future profits must be reduced to present value so that a lump-sum award can replace the flow of future profits.⁹

In any event, the foreclosed plaintiff's injury is the difference between its actual profits and the profits that it would have earned but for the foreclosure. These, of course, are the *net* profits; all costs that were avoided because sales were not made must be deducted from the lost sales revenue to arrive at the net harm suffered by the plaintiff. It is important to understand that a plaintiff may suffer lost profits even if its profits were both positive and growing during the damage period. For example, if the plaintiff's profits in the period preceding the damage period were \$1.0 million and \$1.5 million during the damage period, this does not mean that there was no injury. If the "but for" profits were \$2.0 million during the damage period, then there were lost profits of \$500,000.

397b. Measure of value. In an exclusion case, the firm's loss is the present value of the profit stream that would have been enjoyed but for the exclusion. Setting aside the problems inherent in estimating the profit stream, the proper way to calculate this present value is examined in §393. From time to time, alternative measures of value have been suggested in the valuation literature.¹⁰ Those "alternatives" that are economically equivalent to the present value of the future profit stream may be suitable substitutes. Those that are substantially different from an economic or financial perspective should be viewed with considerable skepticism.

397b1. Capitalized earnings. The concept of capitalized earnings is that the value of a business may be estimated by examining its profitability. A business that earns high profits will be worth more than one earning lower profits. There are three basic approaches to capitalizing earnings. First is the so-called *discounted cash flow* approach, which is economically and mathematically

9. The principles of present value calculations are presented in §393.

10. These have been summarized in various places. See, e.g., Shannon Pratt, *Valuing a Business: The Analysis and Appraisal of Closely-Held Companies* (1981); Shannon Pratt, *Valuing Small Businesses and Professional Practices* (1986); Edward Kabisals & James Hagy, *Business Acquisitions and Leveraged Buyouts* (1986).

equivalent to what was explained as the present value of lost profits. While there may be some relatively minor differences, the spirit of the approach is precisely the same. This, then, is an acceptable measure of damages, but it still must be implemented correctly.

A variant of this approach is the *income capitalization* method. In this case, the plaintiff's net income (or profit) for one year (usually the most recent year) is calculated from the financial statements. Adjustments are made for noncash items such as depreciation and amortization, which are influenced by tax rules rather than economic logic, and for interest, which is determined by decisions on how to finance the venture. In most cases, one would be interested in EBITDA — earnings before interest, taxes, depreciation, and amortization. Interest is not deducted because this is a payment for funds that are borrowed rather than contributed by the owner, and requires a return whether borrowed or contributed. Taxes are not deducted because they will be influenced by the plaintiff's current situation. The fact that future cash flows will be subject to taxes is taken into account in the discount rate. Depreciation and amortization are not deducted because these are accounting artifacts that expense the use of fixed assets, but such assets have to remain in the business if it is to continue operating in the future. Once the firm's EBITDA is determined, it is capitalized by dividing by the expected rate of return. For example, if a 20 percent return is expected and the EBITDA for the year in question were \$100,000, then the capitalized value would be $\$100,000 / 0.20 = \$500,000$. It is clear from our earlier examination that the expected rate of return acts like the interest (or discount) rate. For this approach to be reliable, the expected rate of return must be a good approximation of the appropriate discount rate. An implicit assumption of this approach is that the plaintiff has an infinite life.¹¹ This implicit assumption may or may not be valid depending on the circumstances. For example, it might not be valid if the business depends crucially on the continued presence of certain people, who will have finite lives. In this event, this approach will overstate the value of the firm. In contrast, if the business can be sold and others can manage it equally well, the assumption will be

11. This follows from the mathematical fact that the geometric series

$$S = \frac{1}{1+i} + \frac{1}{(1+i)^2} + \frac{1}{(1+i)^3} + \dots$$

converges to $1/i$ in the limit as n approaches infinity.

valid and the approach to understands that this met life, some skepticism m examples of firms that or

The third capitalizati measure of goodwill. I plaintiff's cash flow to ac required return on simil depreciation of capital a assets. The net result is e those necessary to keep enterprise. These excess definition of *profit*. The a popularly characterized the sum of its goodwill p assets. Properly compu approximation of the perspective.

397b2. *Market-deter* methods that rely on mar be established through s traded company, this is a stock, one simply multip by the number of shares for closely held corporati is rarely sold.¹³ Even wh the true economic value length transaction.

A potentially fruitfu An expert would obtain nesses (i.e., yardsticks) plaintiff's value. The pro rable sales. In most insta parable businesses, whic efforts. The most promis to be in a franchise cont

12. Thus, goodwill has not title loan companies may have g

13. There is also a concept of acquiring a minority interest in trolling interest in a company. U ference between a tender offer a

valid and the approach to valuation will be sound. Once the jury understands that this method assumes that the firm has an infinite life, some skepticism may arise. After all, it is easy to show examples of firms that once appeared strong but no longer exist.

The third capitalization method employs *excess earnings* as a measure of goodwill. In essence, this approach reduces the plaintiff's cash flow to account for opportunity costs, such as the required return on similar investments, as well as the economic depreciation of capital assets and the amortization of intangible assets. The net result is excess earnings — that is, earnings above those necessary to keep resources invested in this particular enterprise. These excess earnings are equivalent to the economic definition of *profit*. The capitalized value of the excess earnings is popularly characterized as *goodwill*.¹² The value of the firm is the sum of its goodwill plus the fair market value of the tangible assets. Properly computed, this approach provides the best approximation of the firm's value from a purely economic perspective.

397b2. *Market-determined values.* There are two valuation methods that rely on market data. First, the value of a business can be established through stock market transactions. For a publicly traded company, this is a fairly simple procedure. For each class of stock, one simply multiplies the stock market value of each share by the number of shares outstanding. Generally, this will not work for closely held corporations whose stock is not publicly traded or is rarely sold.¹³ Even when it is sold, the sales price may not reflect the true economic value because the sale may not be an arm's length transaction.

A potentially fruitful approach resides in comparable sales. An expert would obtain information on sales of comparable businesses (i.e., yardsticks) and use those values as estimates of the plaintiff's value. The problem, of course, lies in identifying comparable sales. In most instances, it will be difficult to find truly comparable businesses, which is the usual problem with all yardstick efforts. The most promising use of comparable sales would seem to be in a franchise context because of the fundamental similarity

12. Thus, goodwill has nothing to do with warm, fuzzy feelings about the firm. Even little loan companies may have goodwill in a financial sense.

13. There is also a conceptual problem with this method. Stock prices reflect the cost of acquiring a minority interest in a company; they do not reflect the cost of acquiring a controlling interest in a company. Usually, this cost is much higher, as can be seen in the difference between a tender offer and a stock's previous trading price.

of the franchisees. Usually, the franchisor's records can be used to identify sales of franchisees. Using economic and demographic data on the locations and financial performance data on the franchisees, it may be possible to isolate the sales of comparable outlets in the franchise system. The purchase prices of comparable outlets may be quite reliable proxies for the market value of the plaintiff franchisee. In other contexts, however, establishing comparability may be problematic, which would undermine the validity of the comparison.

397b3. *Balance sheet methods.* A company's balance sheet provides historical data on the value of assets and liabilities. Consequently, the data usually fail to provide a reliable estimate of the present value of the foreclosed plaintiff's profits. There are three balance sheet techniques for valuing a business: book value of the tangible net worth, fair market value of tangible net worth, and liquidation value.

To calculate the book value of tangible net worth, one subtracts the total liabilities identified on the balance sheet from the firm's total assets. In addition, one must also subtract the book value of the intangible assets, which includes patents, trademarks, capitalized research and development expenditures, and goodwill. The result is the book value of the tangible net worth. The sole virtue of this measure is its ease of calculation. All of the numbers are on the balance sheet, and the arithmetic is straightforward; no real judgment is required. But this method's defects are fatal. To the extent that some of the assets have appreciated, this method fails to reflect those values. Similarly, the method fails to account for any contingent liabilities that have not been recorded. Finally, and most important, this method fails to account for the business's future profit potential. Consequently, this method must be rejected as generally inaccurate. In some instances, it will overstate the value; in other cases it will understate the value.

The fair market value of tangible net worth also does not necessarily reflect the loss of future profits to a plaintiff. An asset's fair market value is defined to be the price that a willing buyer will pay and a willing seller will accept if there is no compulsion in making the bargain and the possibility of distress sales is eliminated. Using this method, an expert can adjust the historical book values of the plaintiff's tangible assets to reflect fair market value. The firm's liabilities are deducted from the fair market value of the tangible assets to yield the fair market value of the firm's net worth. This method is superior to the simple book value

because it provides an plaintiff's assets if the b fails to take into account yield a stream of profit b combined into the plainti

The final balance sh value of the plaintiff's approach, this method er apart from the organizati difference is that liquidati a forced sale. Typically, t when the sum of the val going-concern value of th pulsion in forced sales, th which are below fair mark is not appropriate becaus going-concern value of its

397c. *Estimating gr profits;* one must estimat rate projections are based unreasonable estimates: Si for 14 years prior to its fo in Table 1. As one can see, and, absent any other info continued success in the f is another matter. Over th growth rate was 19 perce growth rate during the fir the compound annual g period was only 6.5 perce percent is triple the firm's appears that the start-up because the firm started fr and two, the firm increase to 60 percent growth. In k 10,000 unit base, would t though the increase in qua

because it provides an estimate of the market value of the plaintiff's assets if the business were to be sold in pieces. But it fails to take into account the fact that these tangible assets may yield a stream of profit beyond the assets, fair market value when combined into the plaintiff's business.

The final balance sheet technique measures the liquidation value of the plaintiff's assets. As with the fair market value approach, this method envisions a sale of the assets separate and apart from the organization that has been employing them.¹⁴ The difference is that liquidation suggests a sense of urgency — that is, a forced sale. Typically, the liquidation value makes sense only when the sum of the values of the individual assets exceeds the going-concern value of the firm. Since there is an element of compulsion in forced sales, the assets may be valued at distress prices, which are below fair market prices. Generally, this whole approach is not appropriate because the plaintiff wants an estimate of the going-concern value of its business, which is what was lost.

397c. *Estimating growth rates.* When estimating future profits, one must estimate a growth rate. Typically, these growth rate projections are based on past experience, which can lead to unreasonable estimates. Suppose that a firm had been in business for 14 years prior to its foreclosure. The sales history is presented in Table 1. As one can see, the firm experienced continuous growth and, absent any other information, one would reasonably assume continued success in the future. The growth rate to use, however, is another matter. Over the firm's 14-year history, the compound growth rate was 19 percent. Note, however, that the compound growth rate during the first seven years was 35 percent, whereas the compound annual growth rate for the second seven-year period was only 6.5 percent. Clearly, the overall growth rate of 19 percent is triple the firm's most recent experience. In this case, it appears that the start-up years involved very high growth rates because the firm started from a very low base. Between years one and two, the firm increased its sales by 600 units, which amounted to 60 percent growth. In later years, a 600 unit increase on, say a 10,000 unit base, would be only a 6 percent growth rate, even though the increase in quantity is 600 in each instance.

14. J. Fred Weston & Eugene Brigham, *Managerial Finance* 550-51 (7th ed. 1981).

Table 1

Year	Quantity	Year	Quantity
1	1,000	8	6,550
2	1,600	9	7,050
3	2,300	10	7,550
4	3,100	11	8,050
5	3,900	12	8,550
6	4,900	13	9,050
7	6,050	14	9,550

The point of this example is that start-up periods often involve very high growth and, for that reason, should perhaps be excluded in estimating future growth. It would seem more reasonable to use the 6.5 percent growth rate for the future. But even this growth rate may overstate the future. Between years 11 and 12, the firm grew by 6.2 percent; between years 12 and 13, it grew by 5.8 percent; and between years 13 and 14, it grew by 5.5 percent. Thus, the growth rate for this firm was declining just before the foreclosure. It would seem that estimates of future growth should take this trend into account.

As with other elements of the damage calculations, there must be some empirical basis for the projected growth rates. When there appears to be no empirical support, the assumed growth rates are apt to be rejected by the court. For example, in *Wells Real Estate*,¹⁵ the First Circuit found insufficient an unsupported prediction of future growth but for the defendant's behavior. Similarly, in *McGlinchy*,¹⁶ the Ninth Circuit rejected a growth rate forecast that was clearly contrived by the plaintiff. "[L]acking any sound foundation, the study would mislead a jury into believing that damages had grown exponentially over the relevant period."

Even when past growth rates are based on evidence in the record, one may not blithely assume that such growth will continue in the future for at least two reasons. First, one must take into account the competitive reactions of the plaintiff's rivals. It is unreasonable to expect no reaction to a substantial loss in sales volume. If, for example, a recent entrant experienced substantial growth and was taking market share from the incumbents, one must anticipate their likely reactions. These reactions may take the form of price reductions, quality improvements, more aggressive

15. *Wells Real Estate v. Greater Lowell Bd. of Realtors*, 850 F.2d 803, 816 (1st Cir.), cert. denied, 488 U.S. 955 (1988).

16. *McGlinchy v. Shell Chem. Co.*, 845 F.2d 802, 807 (9th Cir. 1988).

promotion, better service the contrary, it is unreasonable. In *Park*,¹⁷ the court found 20 percent in conjunction unreasonable because it evoked no competitive pressure. In *American Bearing*, shares for the plaintiff in successive years, but would watch its market reduction. This, without

The second reason indefinitely involves economic given size generates an traditional U-shape. At exploited economies of scale declines with increases improves the firm's efficiency competitive. At some point and per-unit cost rises and further growth becomes may be operating less would have to show that out running into serious und growth into the future

397d. Duration of been excluded from the tive means suffer lost business could go on destroyed business's data this sounds absurd, but present value, which is recovered in the relative the plaintiff's expert estimate present value of \$100,000 \$1,000,000. The present is \$851,356. For 30 years between \$1,000,000 and

17. *Park v. El Paso Bd. of* 1102 (1986).

18. *American Bearing v. Lh* F.2d 943 (3d Cir.), cert. denied, 4

promotion, better service, and the like. Absent some evidence to the contrary, it is unreasonable to expect no reaction. For example, in *Park*,¹⁷ the court found the plaintiff's estimated market share of 20 percent in conjunction with a profit margin of 30 percent to be unreasonable because it assumed that such success would provoke no competitive price reductions by the plaintiff's rivals. Similarly, in *American Bearing*,¹⁸ the plaintiff's expert projected market shares for the plaintiff of 12.5 percent, 37 percent, and 50 percent in successive years; based on the assumption that the defendant would watch its market share erode without a competitive price reduction. This, without more, is unreasonable.

The second reason why past growth rates may not continue indefinitely involves economies of scale. A production facility of a given size generates an average cost curve, which may have the traditional U-shape. At low volumes of output, there are unexploited economies of scale, which means that the per-unit cost declines with increases in output. In this range, growth actually improves the firm's efficiency and thereby makes it more cost-competitive. At some point, however, diseconomies of scale set in and per-unit cost rises with increases in output. As costs are rising, further growth becomes problematic because the firm in question may be operating less efficiently than its rivals. Thus, a plaintiff would have to show that it could actually continue growing without running into serious diseconomies of scale if it projects continued growth into the future.

397d. *Duration of the damage period.* Plaintiffs that have been excluded from the market by some (allegedly) anticompetitive means suffer lost profits. But for how long? In principle, a business could go on forever, and therefore a permanently destroyed business's damage period would be infinite. Of course, this sounds absurd, but future losses have to be discounted to present value, which means that most of the total amount will be recovered in the relatively near term. Suppose, for example, that the plaintiff's expert estimated an annual loss of \$100,000. The present value of \$100,000 forever at a 10 percent discount rate is \$1,000,000. The present value of \$100,000 for 20 years at 10 percent is \$851,356. For 30 years, it is \$942,691. Thus, the difference between \$1,000,000 and \$942,691 represents the present value of

17. *Park v. El Paso Bd. of Realtors*, 764 F.2d 1053, 1067 (5th Cir.), cert. denied, 474 U.S. 1102 (1986).

18. *American Bearing v. Litton Indus.*, 540 F. Supp. 1163, 1173 (E.D. Pa. 1982), aff'd, 729 F.2d 943 (2d Cir.), cert. denied, 469 U.S. 854 (1984).

the profits lost between year 30 and eternity. Consequently, the assumption of an infinite life is not as important as it would seem at first blush. There is, however, a credibility problem when an expert calculates damages on the assumption that a business will have an infinite life. Some experts try to mask this assumption. Again, assume an annual estimated loss of \$100,000. The present value calculation for, say, ten years may be shown along with a terminal value as follows:

Year	Amount	Present Value
1	\$100,000	\$90,909.09
2	\$100,000	\$82,644.63
3	\$100,000	\$75,131.48
4	\$100,000	\$68,301.35
5	\$100,000	\$62,092.13
6	\$100,000	\$56,447.39
7	\$100,000	\$51,315.81
8	\$100,000	\$46,650.74
9	\$100,000	\$42,409.76
10	\$100,000	\$38,554.33
Total	\$1,000,000	\$614,456.71

$$\text{Terminal Value} = \$1,000,000 - \$614,456.71 = \$385,543.29$$

The careful reader will note that this is a sum that is essentially \$1,000,000. This results from the fact that the so-called terminal value is the present value of \$100,000 per year from year 11 to infinity. Trying to hide the fact that the duration of the damage period is infinite will not be lost on the defendant's expert, however, so the effort should be futile.

The real problem with very long damage periods is that much can happen in the future that is difficult to anticipate. As a simple example, consider what has happened to computing technology. In a relatively short period of time, we have gone from cumbersome manual typewriters to PCs to tablets. Instead of carting a desktop PC off to college, students have laptops with enormous processing power, iPads, and smartphones.

Projecting damages far into the future is perilous because of possible new competition, new products, changes in production technology, altered business conditions, regulatory changes, and the like. These sorts of changes could swamp any effects of an

antitrust violation. The court have rejected damage periods. Similarly, if a plaintiff assumes unchanged more or less untenable. In *McGlinchy*, that its expenses would re

There does not appear into the future a plaintiff owner-operated firms have looked to the owner's example, the court found desire to remain in business for inferring the length of ing evidence, this approach possibility of intervening ity of the approach. For termination or renewal chisor to end the plaintiff desire to continue" would assumes that the business to a third party.

397e. A before-and case provides a simple damages in a foreclosure increasing costs of health diagnosis-related group reimbursement rates reimbursement caps, with ment system, provided of their patients. For home rather than in the demand for convalescence need. Collectively, the

19. *Mid-Texas Concrete Sys. v. Woodlands Teleconms. Corp.*

20. 845 F.2d at 837.

21. *Malcolm v. Marathon Oil* (1981).

22. *Key Enter. v. Venice Hosp.* a petition for rehearing was granted 806 (11th Cir. 1992), but then denied (11th Cir. 1993). To the extent the more complete description of this aging Monopoly Power Through H

antitrust violation. The courts have recognized this possibility and have rejected damage periods that appear to be arbitrarily long.¹⁹ Similarly, if a plaintiff assumes that economic conditions will remain unchanged more or less indefinitely, the court is apt to find that untenable. In *McGlinchy*,²⁰ for example, the plaintiff's assumption that its expenses would remain constant for nine years was rejected.

There does not appear to be a clear answer regarding how far into the future a plaintiff may project its damages. When small, owner-operated firms have been foreclosed, some courts have looked to the owner's expected work life. In *Malcolm*,²¹ for example, the court found that the "plaintiff's age, health, and desire to remain in business" provided an acceptable foundation for inferring the length of the damage period. Absent any conflicting evidence, this approach may be satisfactory but still ignores the possibility of intervening factors that could undermine the validity of the approach. For example, a franchise agreement may have termination or renewal provisions that would permit the franchisor to end the plaintiff's business life before "age, health, and desire to continue" would terminate the business. Moreover, it assumes that the business could not be passed on to an heir or sold to a third party.

397e. A before-and-after illustration. The *Key Enterprise* case provides a simple example of a before-and-after estimate of damages in a foreclosure setting.²² In response to the rapidly increasing costs of health care, Medicare developed a system of diagnosis-related groups (DRGs) that specified the Medicare reimbursement rates for various health problems. These reimbursement caps, which replaced the old cost-plus reimbursement system, provided an incentive for hospitals to limit the stays of their patients. For many patients, this meant convalescing at home rather than in the hospital. This, in turn, gave rise to a demand for convalescent aids for which patients had a short-run need. Collectively, these convalescent aids — hospital beds,

19. *Mid-Texas Commc'ns Sys. v. AT&T*, 615 F.2d 1372 (5th Cir. 1980), cert. denied sub nom. *Woodlands Telecomm. Corp. v. Southwestern Bell Tel. Co.*, 449 U.S. 912 (1980).

20. 845 F.2d at 807.

21. *Malcolm v. Marathon Oil Co.*, 642 F.2d 845, 864 (5th Cir.), cert. denied, 454 U.S. 1125 (1981).

22. *Key Enter. v. Venice Hosp.*, 919 F.2d 1550 (11th Cir. 1990). The case was settled while a petition for rehearing was pending. The Eleventh Circuit granted the rehearing, 979 F.2d 806 (11th Cir. 1992), but then dismissed the case as moot due to the settlement, 9 F.3d 893 (11th Cir. 1993). To the extent that it is relevant, Roger D. Blair was the plaintiff's expert. A more complete description of this case is contained in Roger D. Blair & James A. Burt, *Leveraging Monopoly Power Through Hospital Diversification*, 1 Stan. J.L. Bus. & Fin. 287 (1995).

bedside commodes, wheelchairs, walkers, oxygen concentrators, and the like—are known as durable medical equipment (DME).

At the time of the alleged foreclosure, there were four DME suppliers in the relevant geographic market. The vast majority of the DME business flowed from patients discharged by Venice Hospital.²³ One of the four DME suppliers (MPAC) formed a joint venture with the hospital. The plaintiff, Venice Convalescent Aids (VCA), alleged that it was foreclosed from hospital referrals and filed suit for damages. Prior to the formation of the joint venture, the patients, their doctors, or the discharge planners selected the DME supplier based largely on the quality of service provided. Following the formation of the joint venture, an employee of MPAC made the selection for the vast majority of the patients. This, in effect, foreclosed VCA from new referrals. Its revenues did not fall to zero immediately because it had a book of business with current patients. As long as these patients did not die or move away, they would generate rental revenues throughout their convalescence. But without new referrals, VCA's revenues would eventually disappear.

The plaintiff used a simple before-and-after methodology to estimate lost sales. These lost sales were converted into lost profits by deducting the variable costs that were not incurred as a result of not making the sales. There were several judgments that had to be made along the way. First, the foundation for estimating the "but for" rental revenues was VCA's actual monthly experience from August 1983 through April 1985, when the joint venture was implemented. During this period, rental revenues were rising dramatically, as can be seen in Table 2 and Figure 1. In August of 1983, VCA's rental revenue was \$19,682 and by April 1985—some 21 months later—rental revenues were \$32,096. This is an increase of some 63 percent, which amounts to an average increase of 3.0 percent per month. Although VCA's performance was impressive, projecting this growth forward would have been unrealistic for at least three reasons: (1) the demand for DME was not likely to continue growing indefinitely; (2) Medicare was beginning to reduce the DME reimbursement rates; and (3) there was some new entry into the local DME market. At the same time, population was growing and patients were continuing to be discharged who were in need of convalescent aids. In the end, VCA used the average

23. There was a nominal amount of business from physician office referrals and from walk-in customers.

monthly rental revenue joint venture as an estimate of the damage period. Comparing this to the actual performance, this was extremely close. The horizontal line at \$3 is plain to see that the sales for VCA that are well above the one goes into the final six-month average a

Month	Revenue
8/83	\$19,6
9/83	\$18,3
10/83	\$19,4
11/83	\$21,9
12/83	\$24,3
1/84	\$15,2
2/84	\$23,7
3/84	\$24,9
4/84	\$24,6
5/84	\$20,2

Average

In principle, one could estimate the future because a business is fairly risky to project. There is an unavoidable vagary of Medicare rules, new entry, replacement costs. More than the original owners sell the business. Sometime the original owners sell the business. VCA limited the damages by the trial, and then the historical. There were a few well. Thus, there was a calculate.

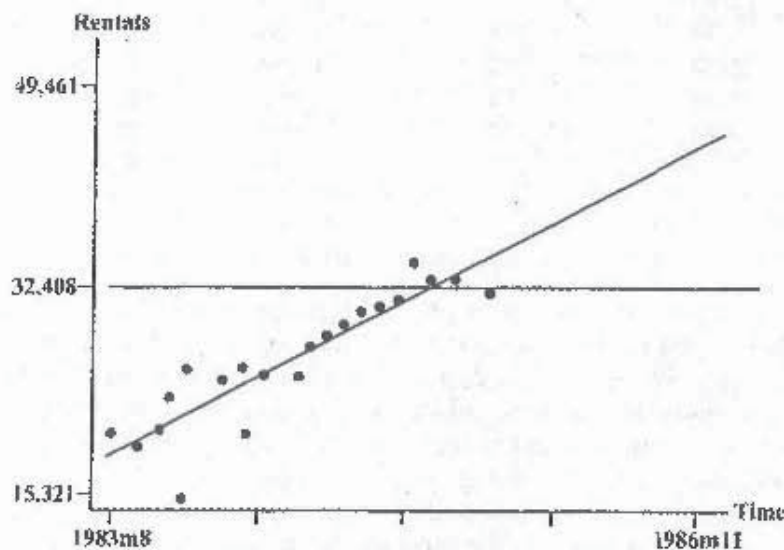
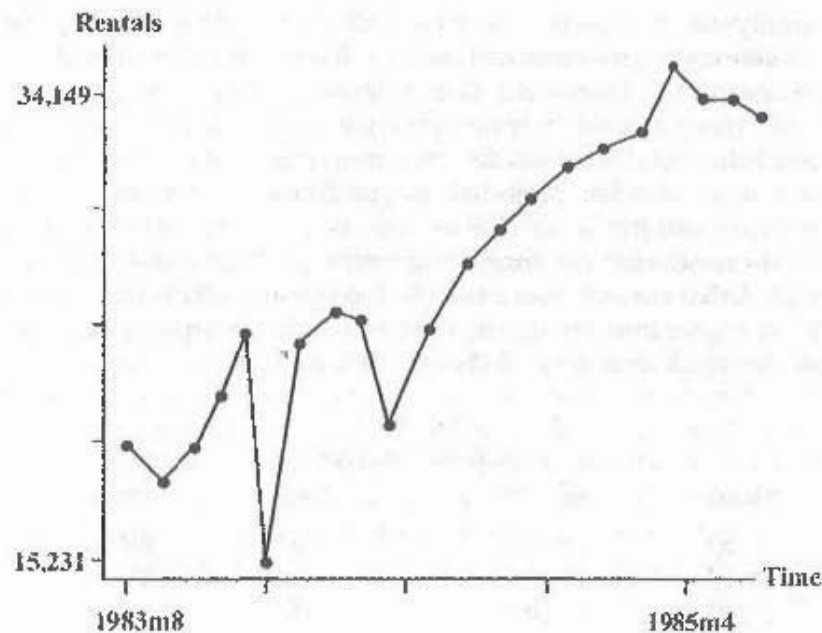
monthly rental revenues over the last six months preceding the joint venture as an estimate of the monthly revenue throughout the damage period. Compared to a projection based on past performance, this was extremely conservative. In Figure 2, we have displayed the rental revenues for the period prior to the joint venture and a regression line projected for just 20 months into the future. The horizontal line at \$32,408 represents the six-month average. It is plain to see that the simple regression predicts rental revenues for VCA that are well above the \$32,408 average. Of course, the farther one goes into the future, the greater the divergence between the six-month average and the regression line.

Table 2
VCA Rental Revenues

Month	Amount	Month	Amount
8/83	\$19,682	6/84	\$24,463
9/83	\$18,329	7/84	\$26,999
10/83	\$19,160	8/84	\$28,116
11/83	\$21,914	9/84	\$29,108
12/83	\$24,367	10/84	\$30,350
1/84	\$15,231	11/84	\$30,827
2/84	\$23,746	12/84	\$31,314
3/84	\$24,993	1/85	\$34,149
4/84	\$24,638	2/85	\$33,017
5/84	\$20,277	3/85	\$33,044
		4/85	\$32,096

Average: 11/84 - 4/85 = \$32,408

In principle, one could project damages indefinitely into the future because a business has no natural life. In practice, however, it is fairly risky to project damages too far into the future because of unavoidable vagaries, which in this case involved changing Medicare rules, new entry, technological changes, and equipment replacement costs. Moreover, VCA was a family-owned and operated business. Sometimes, such businesses do not fare well when the original owners sell the business to someone else. In the end, VCA limited the damage period to five years. Part of that time preceded the trial, and therefore the lost profits for this period were historical. There were damages that extended into the future as well. Thus, there was a mixture of past and future damages to calculate.



The actual sales revenue declined substantially following the formation of the joint venture. By December 1987, monthly rentals were down to some \$11,500, which was about one-third of the

six-month average revenues, the plan for February 1989 as a period.

The lost rental revenue due to the damage caused by the fire. For that, the plaintiff's costs—that is, the fact that rentals were available costs, the plaintiff's categories in the some costs were incurred on computer and equipment that they would not be incurring the damage completely variable costs, mattress delivery, and back expenses would not be made. These include maintenance, computer and the in period, the plaintiff's total rental revenue.

In calculating rental revenues, the plaintiff's discounted to present value the variable costs. Table 3.

24. As a general rule, the age of sales revenue expected cost of a warranty is \$10,000. This warranty falls to, say, \$8,000, then to perform the warranty be 2.5 percent of the \$ avoided costs and the

25. Section 4 do

six-month average benchmark. Based on the decline in the revenues, the plaintiff projected its future revenues to hit zero by February 1989 and remain at zero until the end of the damage period.

The lost rental revenues were computed for each month during the damage period. Lost rentals, however, are not lost profits. For that, the plaintiff had to deduct the avoided variable costs—that is, those costs that were not incurred because of the fact that rentals were not earned. To estimate the appropriate variable costs, the plaintiff and its expert reviewed the detailed cost categories in the plaintiff's financial records. They determined that some costs were completely fixed. For example, VCA's expenditures on computer maintenance, utilities, store maintenance, rent, and equipment leases were deemed to be fixed in the sense that they would not change with changes in DME rental revenues during the damage period. At the other extreme, some costs were completely variable. For example, expenditures on oxygen disposables, mattress disposables, oxygen cylinder rentals, contract delivery, and bad debt were entirely variable in the sense that such expenses would not be incurred if corresponding DME rentals were not made. Finally, some of VCA's costs were partially variable. These included expenditures on office supplies, fuel, vehicle maintenance, and insurance. Based on an assumption that the output and the input prices were constant through the damage period, the plaintiff calculated the variable costs as a percent of total rental revenues.²⁴

In calculating the lost profit, the plaintiff totaled the past lost rental revenues without any interest.²⁵ The future lost rentals were discounted to present value. The total lost rentals were reduced by the variable cost percentage to yield the lost profit as shown in Table 3.

24. As a general proposition, it is appropriate to calculate variable costs as a percentage of sales revenue only under narrow circumstances. Suppose, for example, that the expected cost of a warranty repair is \$200 and the price of the product being repaired is \$10,000. This warranty cost is 2 percent of revenue. But if the price of the product were to fall to, say, \$8,000, there is no real reason to suppose that the labor and materials necessary to perform the warranty work would decline. In that case, the warranty cost of \$200 would be 2.5 percent of the \$8,000 revenue. To use the 2 percent figure would be to understate the avoided costs and therefore overstate the lost net profits.

25. Section 4 does not provide for pre-judgment interest. See §393.

Table 3
Lost Profits Calculations

Lost rental revenues	\$1,139,196
Less variable cost @ 33.2%	378,213
Lost profit	\$ 760,983

397f. Yardstick model of damages. In principle, the yardstick approach to damage estimation can be employed in foreclosure cases. Its usefulness, however, is limited:

... if the markets of the two firms are identical, and if the plaintiff's firm and the firm used for comparison stand in the same relative position in those markets, offer the same product mix, have comparable management and are comparable in all other respects, then the factfinder may infer that the two would have had comparable revenues or profits but for the violation.²⁶

This is, to say the least, a demanding standard, which is why the yardstick approach is rarely used. No doubt there are suitable yardstick candidates, but the problem is in identifying such a firm. Suppose, for example, that a liquor wholesaler lost certain key brands and went out of business as a result. Finding a yardstick would be a daunting task. The plaintiff would have to identify a firm in a different, albeit identical, market that was as successful as the plaintiff prior to its foreclosure. That yardstick would have to sell the same brands, be the same relative size, have similar profitabilities, and have similarly competent management. As a practical matter, it is not obvious just how one would go about identifying such a firm. Additionally, the proposed yardstick is not apt to be terribly cooperative with the plaintiff. First, it might be reluctant to antagonize the defendant, who would have to be a key supplier. Second, it would probably prefer not to have its financial records discovered, and its key personnel would prefer to not be bothered with depositions and the rest of the discovery process.

Given the difficulty of finding a traditional yardstick, some effort might be devoted to building a model of firm performance that can be used as a yardstick. This is an interesting approach that can be promising if it is done with care. If not, the damage estimate is apt to be deemed speculative.

26. Herbert Hovenkamp, *Federal Antitrust Policy: The Law of Competition and Its Practice* §17.6b (5th ed. 2015).

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397g. **Predation.** Rivals may be excluded entirely or partially due to predation, which is a monopolizing practice.²⁷ In its classic form, predation occurs as pricing below cost to drive a rival from the market. In essence, the would-be monopolist sets price at a level that is so unprofitable that its rivals move their resources into another occupation. In theory, once the predator has the field all to itself, it recoups the losses suffered during the period of predation by charging monopoly prices. The victim of predatory pricing suffers financial losses during the predation period and suffers future lost profits following its demise. In this scenario, one way to estimate the damages is to estimate the going-concern value of the victim prior to the predatory pricing. This value represents the present value of the expected future profits. Assuming that the going-concern value can be reasonably estimated, this will provide a measure of the firm's value but for the predation. If the firm sold off its assets as it left the market, then these sums must be deducted from the going-concern value to capture the net loss.

In essence, the plaintiff is claiming as damages the future profits that it would have earned but for the predation minus any salvage value that it received. This calculation is not a straightforward matter. First, the plaintiff must determine the prices that it would have faced absent the predation. Since the predator got overly aggressive on price and arguably went too far, legitimate prices would necessarily be higher, but perhaps not by much. Assuming that the defendant would have been aggressive anyway, the "but for" price could have been as low as average cost or even average variable cost.²⁸ If the plaintiff could have sold its output at those prices and still made a profit, then those forgone profits would be a measure of the damages due to predation. If the plaintiff could not have been profitable at low (but legal) prices then one is hard-pressed to see how it suffered any antitrust injury.

Estimating the "but for" prices requires controlling for varying market conditions. For example, in *Ingits*²⁹ the plaintiff alleged that the defendant had engaged in predatory pricing. Based on the defendant's pricing behavior prior to the very aggressive pricing episode, the plaintiff's damage estimates assumed that the defendant's prices would have exceeded its costs of production by \$0.031. The court rejected this assumption because there was no

27. On predation generally, see Subchapter 7C.

28. On cost standards for predatory and nonpredatory prices, see Subchapter 7C-3.

29. *William Ingits & Sons Baking Co. v. IT Con'l Baking Co.*, 942 F.2d 1332 (9th Cir. 1991).

evidence that market conditions were the same in the base period and in the damage period.

In addition to estimating the "but for" prices, the plaintiff must also estimate the quantity that it would have sold. Its sales during the predation period cannot be used because prices were presumably lower than they would have been otherwise. Since demand functions have a negative slope, the quantity sold would have been larger than the quantity sold at higher prices. Some reasonable estimate of sales volume must be presented, however, if lost profits are going to be reasonably estimated.

As with other damage calculations, the plaintiff must account for a host of factors that could influence its profitability. As already mentioned, the plaintiff must account for aggressive, legitimate pricing by the defendant and for other competitive responses such as improvements in product quality, service, credit, promotions, and the like. There is also the danger of new entry and shifts in demand. For example, in *Southern Pacific Communications*, the plaintiff failed to account for competitive factors that had nothing to do with the defendant.³⁰

In many ways, the damage calculation is easier if the victim is not driven out of business entirely. In that event, if it can show that it would have been profitable, or at least not unprofitable, then its losses will be the damages. This calculation becomes more complicated if the plaintiff attempts to claim more than this minimal amount.

397h. Exclusion in tying cases. Tying contracts can lead to damage claims from two directions: (1) the allegedly overcharged buyer and (2) the foreclosed seller(s) of the tied good. The buyer's claims were analyzed in §395; we now turn to the foreclosed seller of the tied-good. To assess the complexity of the requisite damage estimate, it is useful to recall how the tying contract affects the prices of the tying and tied goods. In addition, it is necessary to consider the structure of the tied-good market.

397h1. Competitive tied-good market. In the case of a competitively structured tied-good market, the price of the tying good is usually below the price that would be charged absent the tying contract. The price of the tied good is raised above the competitive level. Arguably, the tying contract excludes the seller's rivals in the tied-good market from selling to the buyers of the tying good. For

30. *Southern Pac. Commc'ns Co. v. AT&T Co.*, 556 F. Supp. 825 (D.D.C. 1982), *aff'd*, 740 F.2d 1011 (D.C. Cir. 1984).

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example, when IBM tied its cards to its machine leases, rival manufacturers of paper cards were foreclosed from selling to IBM's lessees.³¹ IBM raised the price of a card above the competitive level and presumably reduced the rental rate on the machine. The foreclosed rivals could not base their damage calculations on IBM's card prices because those prices would have been lower absent the tying contract. It would be perverse to use the antitrust laws to claim lost profits based on overcharges made possible by the tying contract. Absent the presumably illegal contract, IBM's lessees would be paying competitive prices for the cards. Thus, foreclosed rivals must base their damage calculations on competitive prices. This, of course, makes the claim for lost profits due to being foreclosed from sales to IBM's lessees much smaller.

There is another consideration as well. Presumably, competent paper companies can make the cards for the IBM machines and therefore could sell their cards to IBM for resale to their lessees.³² In this way, the paper companies would not be foreclosed, although they would sell to IBM rather than to IBM's lessees. The volume of business would be the same. For its part, IBM should have no real interest in producing its own cards unless it could do so more efficiently than the paper companies. Under these circumstances, the "foreclosed" firms are not really foreclosed; they just compete at a different level.

397h2. *Imperfectly competitive tied-good market.* Suppose the tied good is supplied under imperfectly competitive conditions. This market structure provides an economic incentive for tying.³³ Suppose the defendant sells a product over which it has monopoly power to a downstream industry. The downstream purchasers employ the defendant's product as an intermediate input in production. Suppose a complementary input is supplied by an imperfectly competitive industry at noncompetitive prices, which cause the demand for the defendant's product to be lower. This, of course, provides a profit incentive for the defendant to begin supplying the complementary input. If the defendant elects to use a tying arrangement, its imperfectly competitive rivals would also be foreclosed from this book of business. If they claim damages,

31. *International Bus. Machs. Corp. v. United States*, 298 U.S. 131 (1936).

32. IBM tried to argue that it had to tie cards to the leases to guarantee the card quality and smooth functioning of the machines. This argument was rejected due to the alternative of issuing precise specifications for the cards.

33. For an economic analysis, see Roger D. Blair & David L. Kaserman, *A Note on Dual Input Monopoly and Tying*, 10 *Econ. Letters* 494 (1982); Michael D. Whinston, *Tying, Foreclosure, and Exclusion*, 80 *Am. Econ. Rev.* 837 (1990).

the question is what price should be used for the damage calculations. Antitrust policy would not be furthered if the foreclosed firms could use noncompetitive prices for the damage calculations. This would serve to protect monopoly profits rather than promote competition. If the foreclosed firms are required to use competitive prices, their damages — if any — will not amount to much.

397i. Foreclosure due to exclusive dealing. In an *exclusive dealing arrangement*, a buyer commits to dealing with a single seller. For the duration of the contract, other sellers will be foreclosed from selling to the buyer in question. A *requirements contract* is a close cousin of exclusive dealing. During the term of the contract, the buyer agrees to purchase all of its needs for the good in question from the seller.³⁴ Again, this contract will foreclose other sellers from that part of the market. Typically, these contracts do not involve tying — that is, there need not be a second good involved.³⁵

Private plaintiffs in an exclusive dealing case must argue that they are foreclosed (or excluded) from a market or a book of business. In other words, they are denied the ability to make sales that they would otherwise have made. As a result, they must estimate the lost sales and deduct the incremental costs that were avoided, since those sales were not made, in order to estimate the lost profits. There is nothing unique about this problem. It is the same problem faced by all victims of foreclosure. There are, however, some conceptual difficulties that plaintiffs must confront.

Suppose, for example, that Coca-Cola entered into an exclusive dealing contract with a university. All soft drinks sold in snack bars, cafeterias, and through vending machines would be Coca-Cola products. This would obviously foreclose Pepsi Cola, Dr. Pepper, and others from that campus. Arguably, these foreclosed rivals would lose sales and thereby lose profits. But one must ask why Coca-Cola rather than Pepsi Cola won the contract. If Coca-Cola made a more attractive offer, how does that fact become incorporated into the damages? Pepsi Cola could not claim damages on the basis of undiscounted prices because those

34. In some cases, the contract commits the seller to supply all of the buyer's needs for the good in question.

35. There are times when the two are confused; see *Jefferson Parish Hospital District No. 2 v. Hyde*, 466 U.S. 2 (1984), which was analyzed as a tying case as well as an exclusive dealing case.

are irrelevant. Thus, it would have to use suitably discounted prices in its damage calculations.

The alleged victims of exclusive dealing must also show that they actually lost sales. For example, when Tampa Electric had a requirements contract with Nashville Coal, other coal suppliers arguably were foreclosed from selling to Tampa Electric.³⁶ To proceed, however, these other suppliers would have to prove that they had the capacity to produce more coal than they actually had produced. In addition, they would have to prove some likelihood of making the sale. Finally, they would have to estimate the prices at which the lost sales would have been made.

397j. Foreclosure in resale price maintenance cases. Resale price maintenance (RPM) involves a conditional sale: the seller supplies the product to a reseller on the condition that the product not be resold below some specified price.³⁷ Traditionally, RPM has been a per se violation of the antitrust laws, but following the 2007 *Leegin* decision, RPM is now evaluated under the rule of reason.³⁸ Private plaintiffs are typically discounters who were terminated because they refused to sell at or above the minimum price demanded by their supplier. Proof of lost profits is extremely difficult for these terminated dealers. Discounters often earn substantial profits prior to being terminated for two reasons. First, they free-ride on the promotional efforts of other dealers, who finance those promotions by charging the specified resale prices. By not providing the promotional services, the discounter has lower costs and thereby higher profits. Second, the discounter can reduce its price below the minimum resale price but still above its costs. As a result, it gets a higher volume than it would otherwise have. These profits, however, flow from the fact that there is an illegal RPM arrangement in place. It is inappropriate to calculate damages on the assumption that the plaintiff can set its price at its profit-maximizing level while the rival dealers adhere to the RPM scheme. In *Local Beauty*, the Seventh Circuit found that "damages

36. *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320 (1961). This is just an example; no one, including Nashville Coal, was clamoring to sell coal to Tampa Electric at the contract prices.

37. On RPM, see Subchapter 16B-1; H. Hovenkamp, *Federal Antitrust Policy* ch. 11, which summarizes the law and economics of RPM. For problems facing private plaintiffs, see Roger D. Blair, Jill B. Herndon, & John E. Lopetka, *Resale Price Maintenance and the Private Antitrust Plaintiff*, 82 Wash. U. L.Q. 657 (2005).

38. See §1620; *Business Elecs. Corp. v. Sharp Elecs. Corp.*, 485 U.S. 717 (1988). However, see *PSKS, Inc. v. Leegin Creative Leather Products, Inc.*, 171 Fed. Appx. 464 (5th Cir. Mar. 20, 2006), cert. granted, 127 S. Ct. 763 (2006), which at this writing seems likely to overturn the per se rule.

based on profits made by a plaintiff because of the existence of an antitrust violation are not recoverable."³⁹ This means that the plaintiff would have to estimate its profits but for the RPM scheme and compare those to its actual profits. Assuming that there is ample competition in distribution, there might not be much—if any—lost profit because competition would drive price to equal average (and marginal) cost.

§398. Economic Issues in Class Certification

In some instances, a single (alleged) antitrust violation will have many victims with claims that are too small to warrant individual suits. This may result in a class action being filed. Under some conditions, class treatment may be an appropriate way to preserve the compensatory and deterrent roles of §4 of the Clayton Act. By aggregating many (perhaps thousands or even millions) of possibly small claims into a single suit, those antitrust victims can be compensated for their losses. In addition, the threat of a class action suit should serve as a deterrent that will reduce the frequency of antitrust violations. Finally, through class actions, substantial judicial economies may be realized. For these economies to materialize, however, it is necessary that individual issues not be very important. If they are, then the court will have to conduct mini-trials during the course of the litigation, and much of the value of class treatment will be lost. In many (if not all) cases, the plaintiffs will use an affidavit from an expert economist to support a motion for class certification. These affidavits, which assure the court that impact and damages can be proved with "common proof," can be overbroad and misleading on the relevant issues. For example, in a resale price maintenance (RPM) case, estimation of damages appears to be quite easy. One expert recently opined that

Pending the disclosure of the relevant data, antitrust damages can easily be estimated in principle. They would be the before and after [RPM] difference in Callaway golf club prices times the volume of sales, all else held equal.

While this may appear to be easy, appearances are deceiving.

39. *Local Bantley Supply v. Lammert*, 787 F.2d 1197, 1202-03 (7th Cir. 1986).

If RPM is used to support a cartel among the manufacturers or a cartel among the retailers, damage estimation is the same as with any other cartel case. The "all else held equal" proviso is crucial because that means that other factors contributing to an observed price difference must be taken into account. This is not necessarily easy due to econometric difficulties.

The real problem arises in cases where RPM is used as a promotional device. In such cases, the demand curve shifts as the promotion adds value for some or all consumers. As a result, the observed price difference must be adjusted for the value of the promotion. This value may vary across class members, which makes the inquiry individualized. If the value does not vary across consumers, it is likely that there are no net damages. In any event, damage estimation as a classwide basis is not easy in practice.¹

398a. Standards for class certification. Before certifying a proposed class, the court must conduct a multipart inquiry. Rule 23(a) of the Federal Rules of Civil Procedure specifies four prerequisites for class certification that must be satisfied by a designated class representative. These are (1) numerosity, (2) commonality, (3) typicality, and (4) adequacy.² All four of these prerequisites must be met or the class cannot be certified. For present purposes, assume that the requirements of Rule 23(a) have been met by the proposed class representative. Rule 23(b) also has four criteria, but only one of them must be satisfied for class certification.³ The most common antitrust classes are certified under Rule 23(b)(3), which provides for class certification under a predominance standard.⁴ Generally, Rule 23(b)(3) requires two things. First "questions of law or fact common to the members of the class predominate over any questions affecting only individual members." Second, a class action must be "superior to other available methods for the fair and efficient adjudication of the controversy." Satisfying Rule 23(b)(3) may be problematic. Proof of a violation is not sufficient to establish civil liability under §4 of the Clayton Act. Moreover, Rule 23(b)(3) requires that the proposed class representative demonstrate that common questions predominate over individual questions. For the most part, this involves liability issues rather than damage issues. But liability — even in a *per se* case — extends

¶398. n.1. On the impact of recent Supreme Court decisions on proof of causation and damages in class actions, see ¶331.

2. See ¶331.

3. *Ibid.*

4. *Ibid.*

beyond proof of a violation and includes impact—that is, it is necessary to prove that all class members suffered injury to their business or property using common proof.⁵ To satisfy the predominance requirement, therefore, the proposed class representative must prove that the antitrust violation and the fact of injury can be established “on a systematic, class-wide basis.”⁶ For this to be true, proof for one should be proof for all; otherwise individual issues will arise. If the court is faced with the prospect of individualized questions of liability, it would have to conduct multiple mini-trials on liability, which would make a class action inappropriate. There is no specific test for determining whether common issues predominate. As a general matter, the best that can be said is that the need for individualized examination of each class member vanishes if there is generalized evidence that either proves or disproves an essential element of the claim on a class-wide basis.⁷ In many cases, specific counter-examples may prove useful in defeating class certification as they raise the specters of numerous mini-trials.

The recent *Comcast*⁸ decision highlights some issues in class certification.⁹ A class of cable television subscribers alleged that Comcast had violated §§1 and 2 of the Sherman Act. The expert for the class offered four theories of injury, but the trial court rejected all but one of these theories. The trial court and later the Third Circuit certified the class on the basis of common proof, but a divided Supreme Court reversed, with Justice Scalia writing for a five-Justice majority.¹⁰ “In light of the model’s inability to bridge the differences between supra-competitive prices in general and supra-competitive prices attributable to the deterrence of overbuilding, Rule 23(b)(3) cannot authorize treating subscribers within the Philadelphia cluster as members of a single class.”¹¹ The Court said that “respondents’ model falls far short of establishing that damages are capable of measurement on a classwide basis[,]” because “[q]uestions of individual damage calculations w[ould]

5. See *Alabama v. Blue Bird Body Co.*, 573 F.2d 309, 320 (5th Cir. 1978).

6. See *In re Agricultural Chem. Antitrust Litig.*, 1995-2 Trade Cas. ¶71,197 (N.D. Fla. 1995).

7. See *Vitamins Antitrust Litig.*, 209 F.R.D. 251, 262 (D.D.C. 2002).

8. *Comcast Corp. v. Behrend*, 133 S. Ct. 1426 (2013).

9. See ¶331 for additional details about *Comcast*.

10. *Comcast Corp. v. Behrend*, 133 S. Ct. 1426, 1435 (2013) (Justice Scalia, joined by Chief Justice Roberts and Justices Kennedy, Thomas, and Alito).

11. *Id.* at 1435.

inevitably overwhelm questions common to the class."¹² Though the calculations "need not be exact," "modell[s] purporting to serve as evidence of damages in this class action must measure only those damages attributable to that theory."¹³ *Comcast* is an example of problems that can arise in class certification, and illustrates the relationship between disaggregation and common proof.

398b. Affidavits of economic experts. To support a proposed class's motion for class certification, an affidavit from an expert economist is often submitted. These affidavits may address the issue of whether the elements of impact on and damages to the proposed class are amenable to generalized classwide proof. The affidavit typically will address

whether any economic proof used to establish the class representative's claims would be common and equally applicable to the claims of the other members of the proposed Class; and

whether any methodologies or formulas exist that can be used to reasonably calculate or estimate any damages to the class representatives and the other Class members resulting from Defendants' allegedly improper conduct.¹⁴

In the normal course of events, the expert concludes that:

any significant economic issues underlying the class representative's antitrust claims, including but not limited to issues regarding market definition and fact of damages, will be analyzed and proven through the use of common data and evidence that would be used to prove the claims of the other members of the proposed Class; and

the damages suffered by the members of the proposed Class can be calculated through the consistent application of existing, proven formulas, procedures and methodologies.¹⁵

12. *Id.* at 1433.

13. *Ibid.* Cf. *Rail Freight Fuel Surcharge Antitrust Litig.*, 725 F.3d 244, 253 (D.C. Cir. 2013) (expert's methodology could not distinguish between class members who purchased during cartel period and those who purchased earlier; as a result it awarded damages to some members who were not victims of an antitrust conspiracy).

14. Expert report submitted on behalf of the plaintiffs in *Cordizon CLD Litig.*, 103 F. Supp. 2d 618 (E.D. Mich. 2000).

15. *Id.*

In a case alleging a per se violation of §1 of the Sherman Act, it may still be necessary to define the relevant market. An expert may then opine that

if it became necessary for the relevant markets to eventually be defined or established in this matter, I would expect that: (a) such analyses would apply commonly to all Class members, and (b) the types of data, evidence and proof that would be used to define the relevant markets could be used by all the other Class members were they to individually prove their claims. Thus, these economic aspects of Plaintiffs' claims and the claims of the other Class members can be established through common, generalized proof.¹⁶

On the issue of whether common proof can be employed to establish impact (or fact of injury) for all members of the proposed class, the class's expert may opine that

[t]here is sufficient evidence and methods from which Plaintiffs' Counsel could show that the impact from Defendants' conduct was common and widespread to all, or virtually all, of the members of the proposed Class. Moreover, the analysis used to establish the foregoing could be applied uniformly to all of the Class members.¹⁷

Finally, on the question of whether there are formulas or methodologies that can be used to reasonably estimate any damage to the members of the proposed class, an expert may opine that such methodologies exist. The so-called yardstick method and the before-and-after method are available for use.

Evaluation. Much of the above is proof by assertion, which is intellectually unsatisfactory, but may well suffice in some courts.¹⁸ General, conclusory opinions, however, are vulnerable to more explicit analyses by the defendant's expert showing counter-examples. In other words, the defendant may attempt to demonstrate that individualized issues would preclude the use of common proof to establish impact and damages.

398c. An Illustration. A hypothetical example of a price-fixing conspiracy will illustrate some of the difficulties that may arise in using common proof to prove impact and damages. In Figure 1, D represents demand, MR is the associated marginal revenue, and S is the competitive supply. In a textbook world, there is

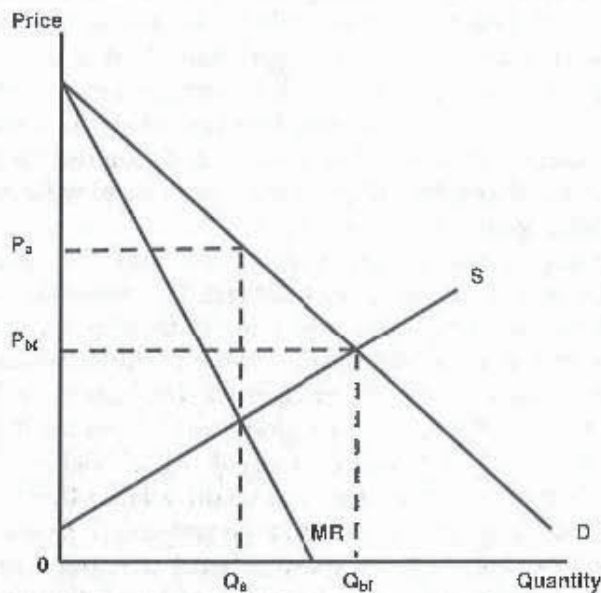
16. *Id.*

17. *Id.*

18. Indeed, the class was certified in the *Cardizem CD* litigation.

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no time dimension, as all sales take place at a single instant; nor is there a spatial dimension, as all sales take place in one spot. In this stylized model, the competitive price, which is determined by competitive market forces, is the price but for the illegal price fixing and is labeled P_M . The corresponding but-for quantity is Q_M . Assuming that the cartel successfully maximizes cartel profits, the actual price and quantity will be P_C and Q_C , respectively. In this simple world, impact is obvious because P_C exceeds P_M . Moreover, damages (Δ) in the aggregate amount to

$$\Delta = (P_C - P_M)Q_C$$

These damages will be trebled to 3Δ . As a result, each consumer will make a claim for $3(P_C - P_M)q$ where q is the quantity purchased by that particular consumer. In this case, damages can be claimed by individual class members with a simple claim form. Since $(P_C - P_M)$ is the same for everyone, each class member need only prove that he or she purchased during the class period and the quantity purchased. This, of course, is the easiest possible case for class certification.

The real world, however, is a more complicated place. Actual transactions take place at different places and at different points in

time. If we consider a four-year damage period and a product subject to seasonal demands, there will be 16 but-for prices to estimate. If there are state-specific regulations that influence price, there would then be $50 \times 16 = 800$ but-for prices to estimate. Over this time frame, one must account for product improvements and changes in market structure due to entry and exit and mergers. All of this suggests that estimating the but-for price may be extremely complicated in practice.¹⁹

Interestingly, the actual price paid may be even more problematic and far more individualized. For products involving trade-in allowances, the economic value of the actual price paid is the sum of cash plus the fair market value of the item traded in. If the trade-in actually allowed exceeds the fair market value, then there is a hidden discount. This alone introduces an individualized element as each transaction involving a trade-in must be examined. Some customers get free credit while others may not. But free credit amounts to a price concession.²⁰ There may be off-invoice discounts and year-end rebates that may depend on buyer characteristics (size and location) and negotiating tactics.²¹ Another way to discount the price is to provide free goods, free delivery, free services, free technical advice, and free warranties. To the extent that these vary across customers, obvious individualized issues arise. If it cannot be shown that such variation does not exist, it would seem that the defendants would be entitled to discovery on this issue.²² This, of course, could involve deposing all of the class members, which would make the case unsuitable for class treatment.

The issues raised here are not confined to damages. If one cannot prove P_a and P_{bf} with common proof, one cannot prove impact either.

19. In *Blades v. Monsanto Co.*, 400 F.3d 562 (8th Cir. 2005), the court denied class certification because of the localized nature of the markets for genetically modified corn and soybean seeds that exhibited substantial price variation. In general, the courts have resisted certification of a general class when proof of the offense requires a geographic market definition but the class members come from different markets. See ¶331.

20. See *Catalano, Inc. v. Target Sales, Inc.*, 446 U.S. 643 (1980).

21. When transaction prices are negotiated, the actual price paid will be determined at least in part by the negotiating styles of the customers. As a result, proof of antitrust injury is bound to be individualized. See, e.g., *Robinson v. Texas Auto. Dealers Ass'n*, 387 F.3d 416, 423 (5th Cir. 2004).

22. Common proof may not exist when the defendants' rebuttal evidence raises individualized questions. For example, in *Rodney v. Northwest Airlines, Inc.*, 2005-2 Trade Cas. (CCH) ¶74,940 (6th Cir. 2005), the court noted that each of Northwest's 74 routes could be a separate market, which would require individualized evidence.

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¶399. *Daubert* and the Admissibility of Expert Testimony

It is the rare antitrust litigant who has not retained an expert economist to offer testimony on market definition, market structure, market power, the competitive significance of business conduct, antitrust injury, and damages. If the expert's opinion testimony satisfies certain standards it will be admissible. These standards are contained in Federal Rule of Evidence 702:

If scientific, technical or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto . . . if (1) the testimony is based upon sufficient facts or data, (2) the testimony is the product of reliable principles and methods, and (3) the witness has applied the principles and methods reliably to the facts of the case.

In short, the proffered testimony must be reliable and relevant. *Reliable* testimony is grounded in the methodology and procedures of science. Thus, the economic expert should employ economic theory that has been subject to peer review and is generally accepted within the field of economics. Testimony that is inconsistent with economic principles would be deemed inadmissible. *Relevant* testimony will employ economic theory that is sufficiently tied to the facts of the case to make the testimony useful to the jury.

399a. *Ambiguity of the standards.* There is some ambiguity regarding the focus of a *Daubert* challenge. At times, the Supreme Court instructs the inquiry to focus on the reliability of the methodology,¹ but at other times, the focus is extended to the reliability of the expert's application of the methodology.² This raises a serious question of what a court is to do when an expert employs a reliable methodology but does so in an unreliable fashion. For example, multiple regression analysis is a fundamental

¶399. n.1. *Daubert v. Merrell Dow Pharmaceuticals, Inc.*, 509 U.S. 579, 595 (1993): "[t]he focus must be solely on principles and methodology, not on the conclusions that they generate." On judicial control of expert testimony, both under *Daubert* and summary judgment rules, see ¶309.

2. See *Kumho Tire Co. Ltd. v. Carmichael*, 526 U.S. 137, 151-52 (1999): "[t]he objective of [Daubert's gatekeeping] requirement is to ensure the reliability and relevancy of expert testimony. It is to make certain that an expert . . . employs in the courtroom the same level of intellectual rigor that characterizes the practice of an expert in the relevant field." This appears to extend the inquiry beyond methodology to include the implementation of a reliable methodology.

statistical technique of econometrics, which is a staple of every graduate program in economics.³ In fact, the Eleventh Circuit has observed that multiple regression analysis is "a methodology that is well-established as reliable."⁴ If an expert witness uses regression analysis in estimating antitrust damages, one can hardly claim that the methodology is unreliable and therefore the expert's testimony should not be excluded on *Daubert* grounds. But the damage expert may employ this reliable methodology in an unreliable way. This flaw in the testimony is apparently not grounds for exclusion under *Daubert* but might be under *Kumho*. If the unreliable application of a reliable methodology is stricken under *Kumho*, it will not be part of the record and therefore will not be considered at all. If it is not stricken, its reliability will be considered at the summary judgment stage in determining whether the expert's testimony is sufficient to withstand a motion for summary judgment. At this stage, the court may find that the analysis is speculative. If so, the analysis cannot be presented at trial because the jury cannot be asked to speculate. As a practical matter, it makes little difference whether unreliable testimony is excluded on *Daubert* grounds or accorded no weight at the summary judgment stage. In either event, the unreliable testimony will not influence the outcome of the dispute, which is as it should be.

In some instances, an expert may employ multiple regression analysis but not offer testimony that sufficiently aids the jury in reaching a decision on a material issue. For example, in *Craftsmen Limousine, Inc. v. Ford Motor Co.*,⁵ the plaintiff's expert used a multiple regression model to (1) prove impact and (2) prove damages. The model, which was intended to identify the adverse impact of the plaintiff's sales was

$$S_t = \beta_0 + \beta_1 T + \beta_2 T^2 + \beta_3 P_t + \beta_4 BUP_t - \beta_5 NC_t + \beta_6 AI_t$$

where S_t is Craftsmen's sales over time, T is time, P_t is Craftsmen's average price, BUP_t is base units produced, NC_t is number of competitors, and AI_t is a dummy variable for an antitrust indicator.⁶ The coefficient AI was negative and statistically significant. From this result, the expert opined that the restrictions imposed by Ford

3. On regression analysis, see 1394.

4. *City of Tuscaloosa v. Harcros Chems.*, 158 F.3d 548 (11th Cir. 1998).

5. 2005 WL 3263288 (W.D. Mo. Dec. 1, 2005).

6. *Id.* at *5-7.

were anticompetitive, because *AJ* was negatively related to sales and formed the basis for damages to Craftsmen. The court would not admit this testimony because it only showed that one competitor was affected. It did not demonstrate that competition was harmed.

399b. Evaluation of methodology. A *Daubert* inquiry may focus on the reliability of the methodology employed by the expert. But what does this entail? By methodology, we mean nothing more arcane than a procedure or set of procedures of inquiry. Applied to damage estimation, it simply refers to the approach that an expert has taken to estimate the antitrust damages suffered by the plaintiff. The simplicity of this concept, however, masks the complexity of damage methodology, which is composed of many layers. Suppose that the plaintiff is the victim of a price-fixing conspiracy. In that event, the damage expert must identify the injury, which we may suppose to be an overcharge.⁷ Arguably, this step does not involve methodology. In an overcharge case, the damage is the difference between the price actually paid and the price that would have been paid but for the illegal cartel activity. In some sense, this is the most basic methodological issue: the measure of harm caused by the defendant. The procedure used to estimate illegal overcharges involves a choice between well-established methodologies — the before-and-after approach and the yardstick approach. If an expert elects to use either of these accepted methodologies, one cannot complain that the methodology itself is unreliable. In some instances, other general approaches may be used, but they may not be considered as well-established and reliable. For example, constructing a statistical yardstick through the use of a multiple regression model of the plaintiff's business may be deemed unreliable.

Assuming that the actual price paid by the plaintiff is readily available, the expert's problem is to estimate the "but for" price. If the damage expert decides to use the before-and-after approach to damage estimation, it will be necessary to do more than simply infer that the price before the conspiracy began would have been the same price as during the conspiracy. The correct application of the before-and-after approach requires using the prices in the "before" period as an evidentiary foundation for inferring what the prices would have been in the conspiracy period but for the illegal activity. The determination of the "but for" prices, however,

7. On overcharge damages, see §395.

must take into account nonconspiratorial factors that would have caused prices to be different in the conspiracy period even if there had been no conspiracy. In some sense, a failure to adjust for nonconspiratorial factors is not a matter of methodological reliability; instead, it is a question of speculation and therefore of sufficiency. If the expert purports to control for nonconspiratorial factors, there is a methodological question of how he or she will accomplish this. Once again, the methodology may involve multiple regression analysis, which has been deemed "reliable." But that methodology may not be used in a reliable fashion. This, of course, may result in speculation and thus insufficient proof.

In a foreclosure case, one may identify the harm suffered as lost profit on lost sales. If the expert attempts to estimate such a loss, that would seem to be reliable at the most global level. Suppose, however, the plaintiff contends that it will suffer lost profits in future periods either because its business has been destroyed or because it will take some time to regain its former position and financial performance. The expert, therefore, will have to estimate the "but for" profits of the plaintiff, which raises a second-tier question of methodology. Traditional methodologies, before-and-after and yardstick approaches, are available. These reliable methodologies may be unreliably implemented, which would lead to speculative results.

The expert may select, say, the before-and-after approach—that is, he or she will forecast the plaintiff's future performance on the basis of past performance. This raises a third-tier methodological choice: how to perform the estimation. If the expert elects to use multiple regression analysis, this is presumably reliable. Assuming that the analysis is conducted reliably, the expert will have presumably reliable forecasts of the future profits.

Future profits must be reduced to present value. If the expert fails to do this, the estimated damages will be unreliable. If the expert recognizes the need to calculate the present value of the future lost profits, a fourth-tier methodological issue arises in selecting the appropriate discount rate. If the capital-asset pricing model⁸ is used, the methodology would appear to be reliable, as this is a staple of corporate finance.

In short, damage estimation involves methodological decisions at several stages in the process. At some point, methodology

8. On CAPM, see ¶393.

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may blend into implementation. It is not clear where the *Daubert* line will be drawn.

399c. Analyzing expert reports. Damage estimates in antitrust cases hinge on careful statistical analysis, reasonable assumptions, reliable data, and the robustness of the results. If any of these areas are circumspect, then the analysis could provide faulty conclusions as to the existence or the amount of damages. In this Subparagraph, several actual expert reports on impact and damages are analyzed. These analyses highlight some common errors that may creep into expert reports.

399c1. *Analysis of impact and damages in Leegin*. Leegin is a supplier of women's accessories (handbags and belts) and shoes.⁹ Its business strategy involved developing a distinctive product line, which it sold under the Brighton brand, to boutique shops rather than through department stores and mass merchandisers. As part of its business strategy, Leegin announced a policy of dealing only with retailers that complied with the Brighton Retail Pricing and Promotions Policy, which required adherence to Leegin's suggested retail price policy. This policy permitted retailers to discount Brighton products that the retailer did not want to reorder. Products that the retailer intended to continue stocking could not be discounted below Leegin's suggested retail price. Under the former *Dr. Miles*¹⁰ rule, if there was proof that a supplier and its customers agreed to an RPM plan, then the plan was considered illegal per se.¹¹ With its 2007 decision in *Leegin*, however, the Court overruled *Dr. Miles* and RPM is now evaluated under the rule of reason.¹²

At the end of 2002, Leegin discovered that PSKS, one of its retailers, was discounting the entire Brighton line below Leegin's suggested retail prices. Since this violated the terms of its RPM program, Leegin terminated its supply agreement with PSKS and refused to fill any further orders for Brighton products. PSKS, in response, filed an antitrust suit alleging that Leegin's RPM policy violated §1 of the Sherman Act.

9. *PSKS, Inc. v. Leegin Creative Leather Prods., Inc.*, 171 Fed. Appx. 464 (5th Cir.), cert. granted, 127 S. Ct. 763 (2006).

10. *Dr. Miles Med. Co. v. John D. Park & Sons Co.*, 220 U.S. 373 (1911).

11. Unilateral decisions to simply terminate noncomplying customers is protected under the so-called *Colgate* doctrine. See *United States v. Colgate & Co.*, 250 U.S. 308 (1919).

12. *Leegin Creative Products, Inc. v. PSKS, Inc.*, 551 U.S. 877 (2007).

Antitrust Injury. As a private plaintiff, PSKS must prove that it suffered antitrust injury. The Fifth Circuit found that it did suffer antitrust injury because it lost the profits that it would have earned on sales of Brighton products. But PSKS's past profits on the Brighton line were influenced — perhaps strongly — by the allegedly illegal RPM program that Lecgin had implemented. PSKS charged discounted prices on the Brighton line while the other retailers charged the higher suggested retail prices. It does not seem consistent with the goals of antitrust to compensate a terminated dealer for lost profits that were earned as a result of an antitrust violation.¹³ The actual world in which PSKS found itself was a world with an RPM plan in place. The world “but for” the antitrust violation would have been a world without the RPM plan. The profits on the Brighton line in that world are what PSKS would appear to have lost. The Fifth Circuit seemed to view the “but for” world as one without the termination, but with the continuing antitrust violation, which made PSKS's discounting particularly effective and profitable. This makes no sense because PSKS then benefits from the antitrust violation.

Damage Estimation. PSKS's expert selected lost net profits as the measure of damages. Since those profits would be realized in the future, he estimated the present value of these future profits, $PV(\Pi)$:

$$PV(\Pi) = \sum_{t=1}^T \Pi_t / (1+i)^t$$

where Π_t represents net profit in year t , i is the discount rate, and T is the duration of the damages — that is the length of the damage period. In this instance, the expert substituted $\Pi_t = \$210,855$, $i = 4.5\%$, and $T = 10$ into this expression. He arrived at a damage figure of \$1,744,926.22. Each variable in the present value calculation is quite important. Based on the expert's report, which is supposed to contain the basis for the expert's opinions, the damage estimation is flawed.

Lost Profits. The expert did not compare the firm's profit before and after the termination. Instead, he calculated a three-year average profit on Brighton products and assumed that the

13. See Roger D. Blair, Jill Herndon, & John E. Lopatka, *Resale Price Maintenance and the Private Antitrust Plaintiff*, 83 Wash. U. L.Q. 657, 716–18 (2005).

plaintiff would not replace these profits by selling other merchandise. There is nothing in the expert's report to indicate that the expert actually investigated this issue. Clearly, if the plaintiff sold a handbag of a different brand instead of a Brighton handbag that it no longer carried, the loss — if any — would be the difference in the profit margin on the two handbags. As an economic matter, the expert's failure to account for profits on replacement sales is a serious mistake.¹⁴ In the limit, the plaintiff may have suffered no actual injury since it may have replaced all of the lost sales and profits. In addition, there is nothing in the expert report to indicate that the expert considered the possibility that future profits might be lower than past profits due to new competition from other retailers, new competition for the Brighton line, changes in style preferences, or anything else.

Gross versus net profits. The expert estimated the contribution margin of the Brighton line. Setting aside the possibility that some of the lost Brighton sales were replaced by sales of other brands, the contribution margin is the correct variable. But PSKS's expert used the gross margin rather than the net margin, which is not correct. Now, the gross margin equals the total revenue less the cost of goods sold, which is what PSKS paid to Leegin. It does not account for any other variable costs of making those Brighton sales. The expert justified this by arguing simply that

[a]lthough Kay's Closet (PSKS) did sustain a substantial drop in sales as a result of losing Brighton products, it did not seem to sustain any similar drop in overhead costs. The store remained at its same location and same size. The hours of operation did not change, so that the staffing needs did not change.

This is conclusory and not based on any accounting data, which makes the opinion vulnerable to challenge. Moreover, it is flatly contradicted by data presented elsewhere in the expert's report.

According to the expert, the PSKS tax returns show an increase in gross profit of \$189,398 between 1997 and 1998 but net profit rose by only \$90,872, which is less than half of the increase in the gross profit. Between 1998 and 1999, gross profits rose by \$64,456, but the net profit rose by only \$21,999 — again less than half the increase in gross profits. These data show that changes in

14. This issue was raised on appeal, but the Fifth Circuit was unconcerned about the expert's failure to offset any profits on replacement sales against the loss on the Brighton line.

gross profits require changes in variable costs other than just the cost of goods sold. Thus, the expert's conclusion that reductions in such costs will not accompany reductions in gross profits is suspect. Empirically based support for the expert's opinion is necessary. If the net contribution margin were really only half of the lost gross profits, the damage estimate would be cut in half. Thus, this apparent error may have resulted in a gross overestimate of the damages.

Duration of damages. PSKS's expert used a ten-year damage horizon, but the foundation for having done so is weak at best:

Determining the damages period is not easy due to future uncertainties. The damages period should run until the plaintiffs can find and establish a substitute product line to take the place of Leegin. Leegin is unique in a number of ways. It also offers a complete look and all products are coordinated with that look. According to [PSKS], there are no other product lines that offer the same characteristics. I understand it will be many years, if ever, that this product line can be replaced. Although the actual time to recover from the loss of this product line may, in fact, be longer, the ten (10) year period . . . that [PSKS] estimated to be necessary to replace the line seems like a reasonable basis on which to compute damages.

The conclusion that ten years is the appropriate damage period is faulty for two reasons. First, from an economic perspective, the relevant question is not how long will it take to find a substitute product line; the question is how long will it take to replace the lost sales and corresponding profits. There is no indication in the expert's report that the relevant question was addressed. The lost sales and profits on the Brighton line can be replaced with Brand A handbags, Brand B belts, and Brand C shoes. It is not necessary to replace the lost Brighton sales and profits with a new line of products. Second, the foundation for the ten years was an affidavit from the plaintiff. The expert did no independent study to determine the general reliability of that testimony.

Discount rate. The expert used a risk-free discount rate for calculating the present value of the future profit stream:

This amount is discounted back to present value as of January 1, 2004 to arrive at damages of \$1,744,926.22. The discount rate used is the current interest rate for federal treasury notes and those notes do not include a risk factor and, therefore, come closest to

determining the time value of money. As reported in the November 21, 2003 *Wall Street Journal*, the interest rate on a ten (10) year treasury note is 4.15%. The discount rate used for this calculation is 4.5%.

The use of a risk-free discount rate is clearly wrong.¹⁵ The 4.5 percent rate is appropriate to account for the time value of money and the inflation risk. But this rate does not incorporate a business risk factor. Even large relatively secure firms have a cost of capital around 12 percent, which reflects their business risk. If a 12 percent discount rate were applied, the estimated damages would be only \$1,191,331.¹⁶ Thus, the use of a risk-free rate grossly overstates the damages.

In summary, the expert's damage report in this case contained several serious shortcomings. The expert should have used net rather than gross profits, which might have reduced the damage estimate by half. He also should have used a discount rate that reflected business risk rather than a risk-free rate. Finally, he should have estimated the time to recovery rather than the time to replace a product line. Each of the values that he used in the present value calculation arguably was incorrect. Moreover, these errors inflated the damage estimate. None of these failures, however, seemed to bother the court.

399c2. *Damage analysis in Conwood.* The damage estimate in *Conwood Co. v. United States Tobacco Co.*¹⁷ employed specific statistical methods that were inappropriate for the task at hand. Moreover, the damage estimate was not robust to different econometric specifications or to the elimination of outliers. In *Conwood*, the expert's analysis was challenged under *Daubert* due to problems with his statistical analysis. On appeal, an *amicus* brief was prepared by an econometrician regarding the appropriate methodology for calculating damages. The brief was not considered by the court.

The parties in this case, Conwood and USTC, are both manufacturers of moist snuff (or smokeless tobacco) products. At this

15. For a clear explanation of the need to include business risk, see Franklin M. Fisher & R. Craig Romaine, *Janis Joplin's Yearbook and the Theory of Damages*, 5 J. Acct., Auditing & Fin. 145 (1990).

16. The present value of \$210,855 for ten years at a discount rate of 12 percent is \$1,191,331.

17. *Conwood Co., LP v. United States Tobacco Co.*, 290 F.3d 768 (6th Cir. 2002), cert. denied, 537 U.S. 1148 (2003) (to the extent it is relevant, L.H. was consulted by the defendant after trial).

time, USTC was the largest producer, with a market share of about 75 percent.¹⁸ Conwood was the next largest manufacturer, with approximately a 13 percent market share.¹⁹ In 1998, Conwood filed suit against USTC for illegally monopolizing the industry for moist snuff in violation of §2 of the Sherman Act. USTC allegedly used illegal marketing practices, such as removing Conwood's products and displays from stores, and in some instances even throwing away Conwood product. This exclusionary behavior was alleged to have stunted Conwood's growth in the market for moist snuff. Conwood's expert produced several reports in which he used regression analysis to estimate the damages resulting from USTC's behavior.

Theory of damages. Conwood did not attempt to estimate the lost profits on lost sales from each specific anticompetitive incident. Instead, Conwood estimated the impact on its market share. The lost profits were then inferred from the lost sales resulting from the reduced market share. According to Conwood, the anticompetitive conduct began in 1990 and reduced its growth in market share over the 1990–1997 period. Prior to 1990, there was no objectionable behavior by USTC. Again, according to Conwood, USTC's anticompetitive conduct did not affect Conwood's growth in those markets where it had already achieved a market share of 20 percent.²⁰ To test this theory, the expert used regression analysis to determine whether the initial market share was a significant determinant of the change in market share:

$$\text{Change in Market Share}_i = \beta_0 + \beta_1 \text{Initial Market Share}_i + \varepsilon_i \quad (1)$$

where i denotes each state-level market observation used in the analysis and ε is the random error term. Market share data existed for 49 markets.²¹ In the analysis, the Conwood expert used state-level market share data for three specific years: 1984, 1990, and 1997. Between 1984 and 1990, there was no anticompetitive conduct on the part of USTC. Between 1990 and 1997, however, Conwood alleged that USTC had engaged in anticompetitive behavior that was alleged to have affected Conwood's growth in market

18. *Id.* at 774.

19. *Id.*

20. An alternative threshold of 15 percent was also used.

21. Hawaii and Alaska are omitted from the analysis, but the District of Columbia is included, for a total of 49 markets.

share. To test this theory, the expert estimated two separate regressions: (1) the change in market share between 1984 and 1990 as a function of the market share in 1984 and (2) the change in market share between 1990 and 1997 as a function of the market share in 1990. The following two regression equations were estimated:

$$\text{MarketShare}_{1990} - \text{MarketShare}_{1984} = \beta_0 + \beta_1 \text{MarketShare}_{1984} + \varepsilon \quad (2)$$

$$\text{MarketShare}_{1997} - \text{MarketShare}_{1990} = \beta_2 + \beta_3 \text{MarketShare}_{1990} + \varepsilon \quad (3)$$

USTC's conduct allegedly affected states with relatively large and relatively small market shares differently. States in which Conwood had a relatively small market share were believed to be disproportionately affected by USTC's alleged behavior. Alternatively, states with relatively high market shares were essentially unaffected by USTC's behavior. The argument made was that market share growth was disproportionately affected in states where the initial market share was low. As a result, the expert assumed that all states where Conwood's market share was relatively high, defined as 20 percent or greater, would be unaffected by any illegal behavior. Additionally, the expert used an alternative threshold of 15 percent when defining high and low market-share states.

Results of damage estimation. To test the proposed damage theory, the expert estimated the ordinary least squares (OLS) regression equations (2) and (3), using state-level market-share data. He assumed that Conwood's market share in 1984 was the sole determinant of the change in Conwood's market share between 1984 and 1990. He then tested the significance of the independent variable, the 1984 market share, in the model. The results indicate that the 1984 market share is not a statistically significant determinant of the market-share growth between 1984 and 1990. This result was said to be derived from the fact that no anticompetitive conduct had occurred during this period. In addition, the expert estimated another regression equation where the change in market share between 1990 and 1997, when there was an allegation of anticompetitive behavior, is predicted solely by market share in 1990. In this specification, the expert found a statistically significant and positive coefficient on the initial market share. This coefficient indicated that the higher the initial market share, the higher the growth in market share would be between the two periods. Using these two separate regressions, the expert inferred that there was a change in the relationship between initial market share and market share growth. Because market share growth appeared

to be a function of initial market share during the 1990–1997 period but unrelated to initial market share in the 1984–1990 period, the expert attributed this to USTC's alleged antitrust violation.

Using the results of the regression analysis, the expert estimated what the market-share growth would have been but for the antitrust violation and calculated damages as a result of this loss. He assumed that states with greater than a 20 percent market share in the initial period would be unaffected by any illegal behavior on the part of USTC. Every state with an initial market share of less than 20 percent was assumed to be affected by USTC's behavior. The expert therefore calculated the change in market share for the low market-share states that would have been realized had each state had an initial market share equal to 20 percent. Accordingly, he used the coefficient estimates on the intercept and the slope terms from equation (3) to determine that any low market share state should have realized a growth in market share of about 8.4 percent between 1990 and 1997. This growth in market share was estimated to be the same for each state with less than 20 percent initial market share. This calculation is the basis for the damage calculations. As a result, damages were estimated to be approximately \$488 million. The expert also used an alternative market-share threshold of 15 percent. Using this particular definition, the damages were estimated to be approximately \$313 million, where each state should have realized a 5.7 percent increase in market share during the 1990–1997 period. Based on this evidence, the jury decided in favor of Conwood, who was awarded damages of \$350 million, which were then trebled by the court to \$1.05 billion. This substantial award was based on demonstrably faulty econometric analysis.

Problems with the statistical analysis. This analysis is flawed for several reasons. By estimating two separate regressions, the expert implicitly assumed that the data in the 1984–1990 period had no bearing on the 1990–1997 period. He found that the statistical significance of the relationship between initial market share and market share growth changed between the 1984–1990 period and the 1990–1997 period. The more appropriate statistical approach would have been to conduct a hypothesis test to determine if the two slope coefficients are statistically significantly different from one another.²² Under this test, the results would

22. The author of the amicus brief suggests using a pooled regression technique where separate coefficients are estimated on the before-and-after time periods, and then tested to determine if the coefficients are statistically different from one another.

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have shown that there was no statistical difference between the slope coefficients for initial market share in 1984 and initial market share in 1990. This result, then, would suggest that the relationship between market-share growth and initial market share had not changed. In other words, there is no statistical evidence supporting the expert's theory that damages had been incurred by Conwood.

Another problem with the econometric analysis of Conwood's expert is the absence of any other independent variables. The regression equation only contains one independent variable, initial market share. The regression assumes that the market-share growth is solely dependent on the initial market share. The regression does not account for any other factors that could have affected market-share growth and that could have differed across states. Certainly, demand conditions may have changed over this time period and may have affected Conwood's market-share disproportionately in different states or regions. By not including any additional variables in the regression, the possibility of omitted variable bias is high. In other words, there are omitted factors that may influence market-share growth. These omitted factors could confound the results of the statistical analysis by biasing the damage estimates. In this way, the regression results do not necessarily identify an effect of USTC's alleged behavior on Conwood's market-share growth by state. Rather, the results only suggest a relationship between initial market share and market-share growth. Because the possibility of omitted variable bias is high, we cannot, therefore, infer anything from these results as to whether there was any illegal behavior and, if so, whether that behavior had any anticompetitive effects.

Robustness. Another potential problem with the damage analysis is that the damage estimate is not robust. The reliability of statistical analysis is dependent on the sensitivity of the results to the particular specification used or to outliers in the data. In other words, a damage estimate is not robust if it changes dramatically as a result of a minor change in the model or if a single data point is removed. This requirement is not only appropriate for sound empirical work, but the *Daubert* standards require knowledge of the known or potential error rate when using a statistical procedure.

The expert's analysis employed state-level market-share data for three separate time periods. These data included observations for 49 separate markets, which included the District of Columbia

(DC). Of all of the data points, DC had the smallest quantity of moist snuff sold for each of the three time periods. As a result, small changes in the quantity of moist snuff sold in DC correspond to large changes in Conwood's DC market share. Additionally, in all states except for DC, the pattern of market-share changes was relatively similar. In DC, however, the pattern was abnormal, meaning that it did not fit the expert's original hypothesis. Recall that the hypothesis was that in states with a small market share in 1990 would experience lower growth between 1990 and 1997 as a result of USTC alleged anticompetitive behavior. According to the expert's definition, DC would be classified as having low market share and therefore should not have realized the large gain in market share that it did experience between 1990 and 1997. Additionally, DC would have been called a large market-share state according to the expert's definition in 1984. According to the hypothesis, this should have ensured market-share growth, but this hypothesis is contradicted, as DC lost market share between 1984 and 1990.

After examining the data patterns through descriptive statistics and figures, it is apparent that the experience of the DC market does not fit the general data pattern. General statistical analysis usually starts with an exercise in plotting the data points of each state's market share to determine what the data look like. It should have been immediately apparent that the data point for DC was an extreme outlier, and based on this, DC should have been removed from the analysis.

Removing one data point from a statistical analysis should have a negligible effect on the results of the analysis. In this case, however, removing DC yields slope coefficients that are statistically indistinguishable. In other words, once the outlier is removed, there is no evidence that the relationship between initial market share and changes in market share were different between these two periods. There is no evidence, therefore, that any damages exist. The damages awarded were \$350 million, but excluding the outlier caused the damage estimate to disappear. Any damage estimate that is robust should not change dramatically if one data point is removed. In this case, the inclusion of a single data point completely drove the empirical results that produced the \$350 million damage estimate, which was later trebled to \$1.05 billion.

399c3. *Damage analysis in French.* E.W. French & Sons was a ready-mix concrete dealer in the Los Angeles area. French alleged that it had been forced out of business by the anticompetitive practices of the defendant.²³ The plaintiff's problem was how to estimate damages for the lost profits due to its exclusion from the ready-mix concrete market. A traditional before-and-after approach would have been unsatisfactory for the plaintiff because it had been largely unprofitable during its 20-year history. A traditional yardstick approach was unavailing because one could not be found. The plaintiff's expert decided to use a composite yardstick for purposes of comparison in estimating the lost profit.

The basic premise of the damages model was that French would have remained in business and would have earned a return on the market value of its fixed assets. French's expert proceeded as follows.

Expert report for French. The returns to small, closely held firms — such as E.W. French — includes the compensation paid to its officers as well as reported net earnings. The reason is that the economic profits that are earned by small firms are commonly paid in the form of executive compensation because there may be tax advantages from doing so. The distinction between reported net earnings and executive compensation is arbitrary: there is no objective distinction between the two categories. Therefore, in the computations below, we consider both to be included in prospective profits. In addition, because the firm's value includes both debt and equity capital, we include interest payments in the estimated return on assets. To be sure, the firm's anticipated interest payments must then be deducted to determine antitrust damages.

In a recent treatise on antitrust damages, the American Bar Association states:

The antitrust laws do not provide for prejudgment interest . . . but do require the calculation of the "present value" of future lost profits at the time of trial. . . . The successful plaintiff usually will add (without interest) the past damages to the present values of the future damages discounted to the trial date.

In the computations below, we follow the suggested procedure and assume that the trial date is March 31, 1998. On this basis, there are 22 years of pre-trial damages: from March 31, 1976, to

23. *E.W. French & Sons v. General Portland*, 62 F.3d 1424 (9th Cir. 1992). The damages model itself was not tested in litigation. This model is used simply for illustrative purposes.

March 31, 1998; and there is also the present value of future damages determined as of March 31, 1998. The resulting values are stated in 1998 dollars.

The first stage of the required computations are made in Table 1, where the years indicated are fiscal years ending on March 31. The firm's assets are expressed in the current year dollars, where the underlying price index follows the price of concrete in Los Angeles as reported in the Engineering News Record and reported in Table 2. The second column of Table 1 describes the average rate of return on assets, including executive compensation, as reported in the Internal Revenue Service publication, Sourcebook of Statistics of Income. These values relate to firms with assets between \$500,000 and \$1,000,000 for IRS Minor Industry No. 3270: concrete, gypsum and plaster products. While this industry is somewhat broader than concrete manufacturers alone, it provides the best available estimate of rates of return in this industry. These rates are reported in the second column of Table 1.

TABLE 1

Year Ending March 31	Value of Firm's Assets ¹ (Current Dollar)	Estimated Rate of Return ² (Percent)	Estimated Return (Current Dollars)	Estimated Return (1997 Dollars)
1998	1,747,724	14.0*	229,014	214,128
1997	1,635,817	14.0*	211,483	196,138
1996	1,510,595	14.0*	211,920	193,712
1995	1,513,712	14.0*	202,004	196,619
1994	1,442,885	18.6	237,530	240,267
1993	1,277,150	10.0	129,472	124,694
1992	1,294,715	6.7	85,132	76,313
1991	1,270,634	15.4	194,587	194,235
1990	1,263,551	9.7	118,855	112,949
1989	1,225,305	16.0	195,097	204,250
1988	1,219,355	10.4	126,518	136,015
1987	1,216,522	8.1	97,758	103,529
1986	1,206,890	15.3	183,354	209,240
1985	1,198,391	20.8	249,560	289,228
1984	1,199,807	12.2	145,167	165,168
1983	1,189,891	13.6	161,825	188,523
1982	1,189,891	10.8	133,251	153,862

Year Ending March 31	Value of Firm's Assets ¹ (Current Dollar)	Estimated Rate of Return ² (Percent)	Estimated Return (Current Dollars)	Estimated Return (1997 Dollars)
1981	1,233,804	12.8	146,468	184,100
1980	1,144,279	12.4	123,588	172,391
1979	996,676	21.6	164,490	266,586
1978	761,530	18.6	137,113	232,667
1977	737,166	19.2	131,799	234,374
1976	686,454	—	—	—

Notes: * Since more recent data are not available, these rates are estimated by the average values of the preceding years.

1. These values are increased from the base amount in 1976 by the percentage increase in the price of concrete in Los Angeles.

2. These rates of return on total assets include interest payments and executive compensation, and are published in the U.S. Internal Revenue Service, Source Book of Statistics of Income for the various years. These values refer to all returns with fiscal years ending between July of the prior year and June of the current year.

TABLE 2

Year Ending March 31	Average Los Angeles Concrete Prices ¹	Producer Price Index Intermediate Materials and Supplies for Manufacturing ²
1998	61.69	128.3
1997	57.74	128.6
1996	53.32	130.5
1995	53.43	122.1
1994	50.93	118.9
1993	45.08	117.9
1992	45.70	118.1
1991	44.85	118.7
1990	44.60	118.1
1989	43.25	113.2
1988	43.04	105.3
1987	42.94	102.7
1986	42.60	103.3
1985	42.30	104.1
1984	42.35	101.2
1983	42.00	100.0

Year Ending March 31	Average Los Angeles Concrete Prices ¹	Producer Price Index Intermediate Materials and Supplies for Manufacturing ²
1982	42.00	98.7
1981	43.55	91.7
1980	40.39	80.9
1979	35.18	72.0
1978	26.88	67.4
1977	26.02	64.0
1976	24.23	61.7

Notes: 1. These prices are the average reported prices for 3000 psi ready-mix concrete in June and December of the prior year. These data appear in the *Engineering News Records* for the indicated months.

2. Compiled and published by the U.S. Bureau of Labor Statistics; calendar year 1982 equals 100, so this value is used for the year ending March 31, 1983.

The first column of Table 1 gives the value of the firm's assets "but for" the unlawful events. As mentioned above, these assets were valued at \$686,454 on March 31, 1976, excluding the value of the firm as a going concern. In succeeding years, these values are increased by the percentage rise in average Los Angeles concrete prices. This step rests on the reasonable presumption that the value of assets used in the ready-mix concrete business increases with the average price of concrete in the same city and also provides an objective measure of the increasing value of the firm.

The indicated rates of return are then multiplied by the value of the firm's assets at the end of the prior year to determine the expected return in current dollars. In these computations, there are two factors that are not accounted for. The first factor is the value of E.W. French & Sons as a "going concern." This firm, like most others, is worth more than merely the market value of its assets and, indeed, may be worth substantially more. However, we do not include this factor in the damage calculations. In addition, since these estimated returns include the expected value of executive compensation, one should also deduct the amounts that French's officers could earn in alternative positions. Strictly speaking, only the executive earnings that exceed the alternative salaries that could be earned elsewhere should be included in the firm's net returns. However, we have no way to estimate the appropriate magnitudes.

The column second from the right in Table 1 provides the estimated returns in current dollars for the indicated years. From these values, we deduct French's interest payments made in the year ending March 31, 1973, and also restate these amounts in 1998 dollars by means of the Producer Price Index for intermediate materials and supplies for manufacturing, which is reported in the right-hand column in Table 2. As indicated in Table 4, these amounts total approximately \$4.1 million.

In addition to the returns foregone prior to trial, antitrust damages also include the present value of future returns foregone. To make these computations, one needs to estimate the weighted average cost of capital for a firm such as E.W. French. For this purpose, we use the Capital Asset Pricing Model, which is a standard technique used to determine the appropriate discount rate in present value computations. Multiplying the appropriate Capitalization Multiple by the estimated return for the year starting on April 1, 1997, we find that the present value of future returns foregone (sic) is approximately \$1.9 million. This figure is also given in Table 3.

TABLE 3

Aggregate Returns Foregone 1976 Through 1997	\$4,088,988
Present Value of Future Returns Foregone	\$1,946,364
Net Worth Withdrawn \$82,180 on March 31, 1976	\$-170,886
Value on March 31, 1998	\$5,864,466

From these amounts, we deduct the total net worth that was withdrawn from this firm when it was closed, which we consider to be March 31, 1976, although it was actually a few months later. While that value was \$82,180 on March 31, 1976, it would have been \$170,886 on March 31, 1998, using the same price index as before.

Aggregating these amounts, we estimate total antitrust damages for E.W. French & Sons, as of March 31, 1998, at approximately \$5.9 million.

Analysis of French's damages. The damage estimates put forward by French's expert were deficient in many respects. First, French went out of business in 1976. According to the expert,

French would have remained in business from 1977 to 1998 and then on to eternity "but for" General Portland's conduct. He could have examined French's past performance and made some estimate of its future performance, but he did not do so and for good reason. Table 4 summarizes French's profits and losses during the 1958-1976 period. As one can see, French had a history of losses. The sum of French's profits and losses for the entire period amounted to a cumulative loss of \$188,232. From this history, French's expert could not project any damage because he could not legitimately infer future profits from these past losses.

TABLE 4
Profit/Loss of E.W. French & Sons 1958-1976

Year	Actual Profit	Cum. Profit
1958	\$5,668	\$5,668
1959	8,084	13,752
1960	8,620	22,372
1961	(490)	21,882
1962	(834)	21,048
1963	1,973	23,021
1964	9,785	32,806
1965	(6,095)	26,711
1966	(25,114)	1,597
1967	(117,881)	(116,284)
1968	(31,799)	(148,083)
1969	(32,090)	(180,173)
1970	(1,994)	(182,167)
1971	59,611	(122,556)
1972	(22,691)	(145,247)
1973	61,304	(83,943)
1974	29,011	(54,932)
1975	(69,071)	(124,003)
1976	(64,229)	(188,232)
Total Loss	\$188,232	

Source: Financial statements of E.W. French & Sons, various years.

French alleged that it was injured beginning in 1971. There are two ways of looking at the data. First, French's performance for the 1958-1970 period — presumably before any injury — was dismal. French had a cumulative loss of \$182,167 by 1970. Again, the data do not suggest a profitable future for French.

A second way of looking at these data is to compare French's performance during the six-year period, 1971-1976, with the performance during the preceding six-year period, 1965-1970. During the period when French allegedly was being injured by General Portland, French lost \$6,065. During the preceding six years, French lost \$214,973. During the final 12 years of French's existence, French lost \$221,038. From this bleak performance, French's expert could not possibly project future profits. Consequently, he could not base his damage calculations on French's actual past performance.

The expert's approach to estimating damages starts with the market value of French's fixed assets. He increased this value by the reduction in stockholders' equity between 1973 and 1976 that he attributed to conduct by General Portland. Then he estimated a return on those fixed assets on a yearly basis from 1977 until 1997. This approach is flawed in every regard.

The most fundamental problem lies in the assumption that French would earn a return on these assets. After all, French was generally unprofitable throughout its history. In addition to the unreasonable expectation that French would suddenly become profitable after nearly 20 years of losses, the expert's implementation of his own approach was flawed.

The expert reported that the market value of the fixed assets on the March 31, 1976, balance sheet was \$534,500. But his balance sheet was not an audited financial statement. There did not appear to be any asset appraisal supporting this value. In any event, it is a clear overstatement since the actual market value of the assets was far less than that when French sold them. Thus, the expert started with an inflated value of the fixed assets.

This mistake was compounded by inflating the value even further. In his report, the expert noted that the stockholders' equity in French was \$234,134 as of March 31, 1973. As of March 31, 1976, the stockholders' equity had fallen to \$82,180. He attributed this decrease of \$151,954 to losses suffered by French due to the defendant's conduct.

Even if this were correct, it is wrong to add any reduction in stockholders' equity to the market value of the fixed assets. These have nothing to do with one another. The market value of the fixed assets is determined entirely by the supply of and the demand for such fixed assets—specialized trucks, the batch plant, and the land. The market value of the fixed assets was not influenced by French's stockholders' equity. Consider, for example, the market

value of a concrete mixer truck. The market value of a used truck will be influenced by the price and availability of new trucks as well as the demand for and supply of used trucks. It will not be affected by changes in French's stockholders' equity.

French's expert assumed that French would have continued in business beyond 1976 and remained a going concern. This is a dubious assumption at best. In profitable firms, the value of the assets assembled into the firm is greater than the market value of the assets sold separately as individual assets. The extra value associated with the profitable firm is approximated by the present value of the profits that operating the going concern generates. When a firm is unprofitable, the liquidation value of the firm (that is, the value of the assets sold separately) exceeds the going-concern value. In this case, French had no value as a going concern because it was not profitable. If it had had any value as a going concern, Mr. French would not have had to liquidate the firm and sell off the assets piecemeal. That is, he would have sold the firm as a viable ready-mix concrete producer. This was not possible because French's financial performance had been dismal over its entire history.

French's expert began his calculations with an estimated value of fixed assets of \$686,454, which was already inflated. He then increased the market value of the fixed assets year by year from 1977 through 1997. He increased the asset value by the same percentage as concrete prices increased. This decision is not based on any principle of economics and therefore is wrong. There is no logical connection between changes in the price of concrete and the market value of fixed assets. For example, one should not expect the price of a used mixer truck to increase because the price of concrete had increased. The price of concrete may rise because the costs of labor, gasoline, sand, cement, and aggregate increase. There is no logical connection between these cost increases that cause concrete prices to rise and the price of a used mixer truck. In fact, if one tested the expert's approach against French's actual experience during the 1969-1976 period, one would find that French proves his expert is wrong. This can be seen in Table 5, which compares percentage changes in the price of concrete with percentage changes in the market value of French's fixed assets during the 1969-1976 period. Table 5 shows that there is no apparent relationship between changes in the price of concrete and changes in the market value of the fixed assets. Thus, French's own data show that his expert's approach is wrong.

TABLE 5
Percentage Changes: Concrete Prices and
Market Value of Fixed Assets

Year Assets	% Change Concrete	% Change
1969	0.0%	8.4%
1970	0.5	-6.9
1971	15.2	17.7
1972	5.7	-5.4
1973	-7.0	0.4
1974	17.6	0.9
1975	16.0	0.0
1976	19.6	0.0

Sources: Financial statements of E.W. French & Sons, various years; and Engineering News Record, various years.

The expert used Internal Revenue Service (IRS) data to calculate a return on assets that he applied against the incorrect market value of French's fixed assets. This calculation is flawed because the IRS data pertain to the net book values of all assets, not the market value of fixed assets. The result of this is to overstate the return that he claims French would have earned but for its going out of business. A numerical example will help to clarify this. Suppose that a firm had a return of \$100. In addition, suppose that the net book value of the firm's assets was \$500. Now, the expert's rate of return calculation using the IRS data is based on the net book value of the total assets. For this example, the rate of return would be 20 percent: $\$100/\500 . Suppose, however, that the market value of the fixed assets were \$1,000. If one applied the 20 percent rate of return to the market value of the fixed assets, one would predict a return of \$200: 20 percent of \$1,000. But the firm's actual return was only \$100. Thus, this approach may grossly overstate the predicted return. This is precisely what French's expert did when he applied the rate of return based on IRS data to French's market value of the fixed assets.

This is not the only mistake that French's expert made in estimating a rate of return. In his calculations, he included executive compensation as part of the return. But Mr. French and his brothers were not passive officers of E.W. French & Sons. French and his brothers managed the operation. Someone would have had to manage the operations and be compensated for doing so. Just as French incurs costs for cement, sand, gravel, and trucks, which are

necessary for the production and delivery of ready-mix concrete, French must incur management costs. Without management, there can be no concrete production. Consequently, in calculating this hypothetical rate of return, the expert must include as a cost the salary that a competent manager would have to have been paid. The expert failed to do this and therefore his calculation of the rate of return overstates the appropriate rate of return and is wrong. The calculated profit is far too high because he has omitted an important cost from his calculation.

The expert also inflated the damage estimate by including pre-judgment interest. He does this under the guise of expressing the historical losses in 1997 dollars. This is clearly inappropriate as it is economically equivalent to awarding pre-judgment interest. Thus, this is another mistake, and not a trivial one. This error alone overstates the damage estimate by nearly half a million dollars (\$496,931).

The losses estimated by the expert are pure speculation. Every element of the damages model is wrong:

- (1) He overstated the rate of return.
- (2) He compounded the problem of having overstated the rate of return by applying it to an inflated asset base.
- (3) He illogically increased the asset base according to inflation in the price of concrete.
- (4) He failed to account for the costs of management.
- (5) He applied prejudgment interest to the past losses.

Every element of his damage calculation is incorrect.

The expert's estimate of the present value of future returns is wrong because it relies on the same methodology that was used in estimating the historical losses.